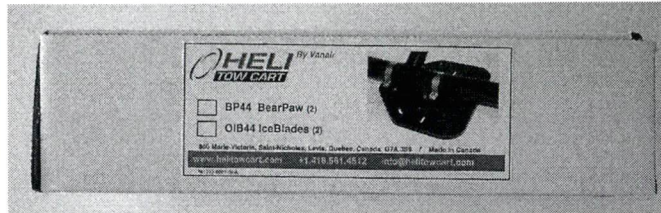
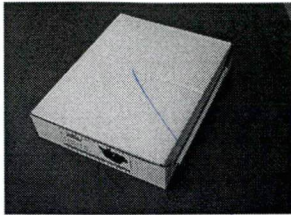


**1- Préparer boîte:**



- Utiliser Boîte Aubut. 17"x13"x3" (Poids boîte une fois remplie: 5lbs)
- Apposer étiquette 273-0001-04-A sur le côté de la boîte

**2- Préparer Sacs de Hardware:**

- Placer le matériel suivant dans deux sacs identifiés des étiquettes appropriées suivantes.
- Insérer quantités tel qu'indiqué entre les parenthèses

**Front Attachment Kit**

- (2) U-Clips      (2) Black Filler Blocks
- (4) Nuts          (4) AN4-15A Bolts (long ones)
- (8) Washers    (4) Slotted clip supports

**Rear Attachment Kit**

- (2) U-Clips      (4) AN4-14A Bolts (short ones)
- (4) Nuts          (4) Slotted clip supports
- (4) Washers

**3- Préparer Sac de Documents:**

- Placer le matériel suivant dans le grand sac identifié de l'étiquette appropriée suivante.

**Information Kit**

- (1) Installation instruction
- (1) STC Canadian certificate copy
- (1) STC FAA certificate copy
- (1) STC EASA certificate copy

**3- Compléter emballage:**

- Froisser papier d'emballage et déposer dans le fond de la boîte
- Déposer les deux pad noirs
- Déposer les deux sacs de hardware sur les cotés
- Déposer le sac de kit ICEBLADE (si applicable seulement- voir section suivante)
- Froisser papier d'emballage et déposer sur dessus du matériel
- Déposer le sac de documents
- Sceller
- Cocher contenu de la boîte sur étiquette de la boîte

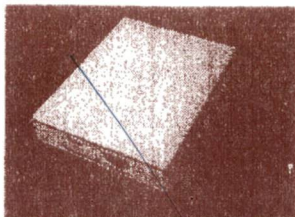
**Si Option IceBlade incluse dans commande:**

Placer le matériel suivant dans un petit sac identifié de l'étiquette appropriée suivante.

**OIB -Option IceBlade Kit**

- (4) Iceblades
- (8) Nuts
- (8) Washers

### 1- Préparer boîte:



- Utiliser Boîte Aubut. 17"x13"x3" (Poids boîte une fois remplie: 5lbs)
- Apposer étiquette 273-0001-04-A sur le côté de la boîte

### 2- Préparer Sacs de Hardware:

- Placer le matériel suivant dans deux sacs identifiés des étiquettes appropriées suivantes.
- Insérer quantités tel qu'indiqué entre les parenthèses

#### Front Attachment Kit

- (2) U-Clips
- (2) Black Filler Blocks  $\frac{1}{4}"$
- (4) Nuts
- (4) AN4-16A Bolts (long ones)
- (8) Washers
- (4) Slotted clip supports
- (2) Black Filler Blocks  $\frac{3}{32}"$

#### Rear Attachment Kit

- (2) U-Clips
- (4) AN4-14A Bolts (short ones)
- (4) Nuts
- (4) Slotted clip supports
- (4) Washers
- (2) Black Filler Blocks  $\frac{1}{8}"$

### 3- Préparer Sac de Documents:

- Placer le matériel suivant dans le grand sac identifié de l'étiquette appropriée suivante.

#### Information Kit

- (1) Installation instruction
- (1) STC Canadian certificate copy
- (1) STC FAA certificate copy
- (1) STC EASA certificate copy

(1) ~~STC~~

*Helitowcart Release Certificate* <sup>LOT</sup> *incluant No. ~~314-0013-00-A~~*

### 3- Compléter emballage:

- Froisser papier d'emballage et déposer dans le fond de la boîte
- Déposer les deux pad<sup>3</sup> noirs
- Déposer les deux sacs de hardware sur les cotés
- Déposer le sac de kit ICEBLADE (si applicable seulement- voir section suivante)
- Froisser papier d'emballage et déposer sur dessus du matériel
- Déposer le sac de documents
- Sceller
- Cocher contenu de la boîte sur étiquette de la boîte
- ~~HARDWARE~~ <sup>LOT</sup> *No ~~314-0013-00-A~~ sur BTE*

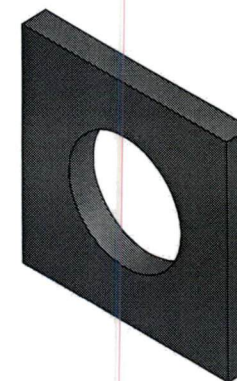
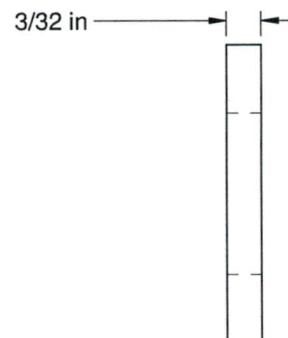
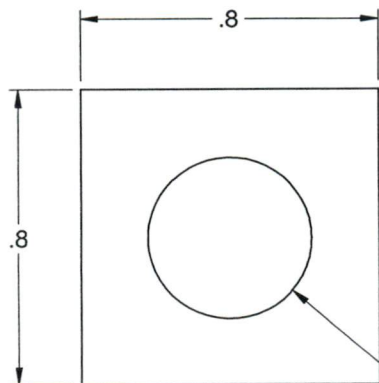
### Si Option IceBlade incluse dans commande:

Placer le matériel suivant dans un petit sac identifié de l'étiquette appropriée suivante.

#### OIB -Option IceBlade Kit

- (4) Iceblades
- (8) Nuts
- (8) Washers




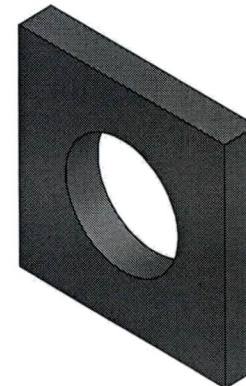
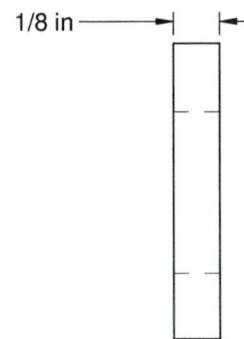
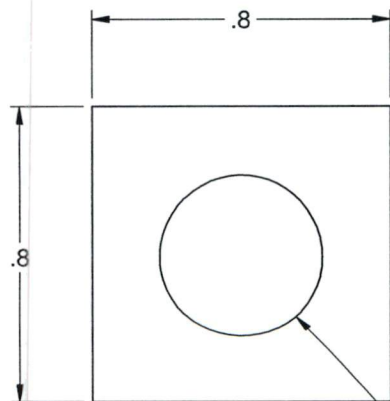


Ø 7/16 in

R01	Initial Issue	06-09-06	G.L.
Rev.	Description	Date	Par


TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ± 0.005"
ANGLE ± 1°
PROJECTION:

 <b>AMEC</b> U S I N A G E		<b>AMEC Usinage inc.</b> 110, des Grand-Lacs Saint-Augustin (Québec) Canada, G3A 2K1 Tél. : (418) 878-4133 Fax : (418) 878-2536 <a href="http://www.amecusinage.com">www.amecusinage.com</a>		CE DOCUMENT EST LA PROPRIÉTÉ DE AMEC USINAGE INC. IL NE DOIT PAS ÊTRE DÉVOILÉ, UTILISÉ OU REPRODUIT EN TOUT OU EN PARTIES SANS L'AUTORISATION ÉCRITE DE AMEC USINAGE INC.	
		<b>Bearpaw - Filler Block 3/32"</b>		<b>UHMW</b>	
Dessiné par / Drawing by:	G. Lapointe	Date: (yyyy-mm-dd)	2006-09-06	Format :	A
Vérifié par / Checked by:		Date: (yyyy-mm-dd)		Échelle / Scale:	N/A
Approuvé par / Approved by:		Date: (yyyy-mm-dd)		Numéro dessin / Drawing Number:	VNR103
				Numéro de pièce / Part Number:	314-0014-01-A
				Page #:	1 de 1
				Rev. #:	R01



Ø 7/16 in

R01	Initial issue	06-09-06	G.L.
Rev.	Description	Date	Par

TOLERANCES		Titre / Title		Matériel / Material:	
		Bearpaw - Filler Block 1/8"		UHMW	
1/X ± 1/32" X.XX ± 0.010" X.XXX ± 0.005" ANGLE ± 1°		Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-09-06	Format : A	Échelle / Scale: N/A
		Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Page #: 1 de 1	
				Numéro dessin / Drawing Number: VNR104	Rev #: R01
		Approuvé par / Approved by:	Date: (yyyy-mm-dd)	Rev #:	
PROJECTION: 				Numéro de pièce / Part Number: 314-0015-01-A	



**AMEC Usinage inc.**  
110, des Grand-Lacs  
Saint-Augustin (Québec)  
Canada, G3A 2K1  
Tél. : (418) 878-4133  
Fax : (418) 878-2536  
[www.amecusinage.com](http://www.amecusinage.com)

CE DOCUMENT EST LA  
PROPRIÉTÉ DE AMEC  
USINAGE INC. IL NE DOIT  
PAS ÊTRE DÉVOILÉ, UTILISÉ  
OU REPRODUIT EN TOUT OU  
EN PARTIES SANS  
L'AUTORISATION ÉCRITE DE  
AMEC USINAGE INC.



**1- Heat Shrink:**

- Brand Alpha Wire, Model FIT-221-1. 1"wide, Clear color
- Purchased in 1 meter length.
- Material : Polyolefin. A family of thermoplastics based upon the unsaturated hydrocarbons known as olefins. When combined with butylene or styrene polymers, they form compounds such as polyethylene and polypropylene.

**2- Install Shrink:**

- Cut Shrink in 5" lengths. Insert into U clips.
- Set U clips on their side on aluminum sheet.
- Heat oven to 350F for 30 min.

MIL-DTL-23053/5C,  
CLASS 1, 2  
UL STANDARD 224  
CSA STANDARD 198  
RoHS COMPLIANT

# **FIT**® Preferred Heat Shrink Products

## GENERAL PURPOSE, IRRADIATED POLYOLEFIN

### **FIT-221**

Alpha Part No. And Size	Minimum Supplied I.D.		Maximum Recovered I.D.		Nom. Recovered Wall Thickness		4 Ft. Lengths Total Ftg.	Standard Packages Spools			No. Cut Pieces 6 Inch	No. Cut Pieces 1/2" or 1"
	Inches	mm	Inches	mm	Inches	mm		Tot. Ftg.	Tot. Ftg.	Tot. Ftg.		
<b>FIT-221-3/64</b>	0.046	1,17	0.023	0,58	0.016	0,41	100	1000			40	1000
<b>FIT-221-1/16</b>	0.063	1,60	0.031	0,78	0.017	0,43	100	1000	100	70	36	1000
<b>FIT-221-3/32</b>	0.093	2,36	0.046	1,17	0.020	0,50	100	500	100	65	32	1000
<b>FIT-221-1/8</b>	0.125	3,18	0.062	1,58	0.020	0,50	100	500	100	60	28	1000
<b>FIT-221-3/16</b>	0.187	4,75	0.093	2,36	0.020	0,50	100	500	100	50	24	1000
<b>FIT-221-1/4</b>	0.250	6,35	0.125	3,18	0.025	0,63	100	250	100	40	20	1000
<b>FIT-221-3/8</b>	0.375	9,53	0.187	4,75	0.025	0,63	100	200	50	35	16	1000
<b>FIT-221-1/2</b>	0.500	12,70	0.250	6,35	0.025	0,63	20	150	50	32	14	-
<b>FIT-221-3/4</b>	0.750	19,10	0.375	9,53	0.030	0,76	20	250	50	24	12	-
<b>FIT-221-1</b>	1.000	25,40	0.500	12,70	0.035	0,88	20	250	50	16	8	-
<b>FIT-221-1-1/2</b>	1.500	38,10	0.750	19,10	0.040	1,02	20	125	-	-	5	-
<b>FIT-221-2</b>	2.000	50,80	1.000	25,40	0.045	1,16	20	125	-	-	3	-
<b>FIT-221-3</b>	3.000	76,20	1.500	38,10	0.050	1,27	8	100	-	-	2	-
<b>FIT-221-4</b>	4.000	101,60	2.000	50,80	0.055	1,40	8	50	-	-	1	-

### SPOOL COLOR AVAILABILITY CHART

<b>FIT-221</b> Tubing Size	Put-Up	Colors	<b>FIT-221</b> Tubing Size	Put-Up	Colors
3/64"	1000'	Black, Clear	3/8"	200'	All Colors
1/16"	1000'	All Colors*	50'	Black, Clear	
	100'	Black, Clear	35'	All Colors	
	70'	All Colors	1/2"	150'	All Colors
3/32"	500'	All Colors	50'	Black, Clear	
	100'	Black, Clear	32'	All Colors	
	65'	All Colors	3/4"	250'	All Colors
1/8"	500'	All Colors	50'	Black, Clear	
	100'	Black, Clear	24"	All Colors	
	60'	All Colors	1"	250"	All Colors
3/16"	500'	All Colors	50"	Black, Clear	
	100'	Black, Clear	16"	All Colors	
	50'	All Colors	1-1/2"	125'	Black, Clear
1/4"	250'	All Colors	2"	125'	Black, Clear
	100'	Black, Clear	3"	100'	Black, Clear
	40'	All Colors	4"	50'	Black, Clear

\*All colors include black, white, clear, red, yellow, blue, green

**SEE PAGE 116  
FOR  
ECONOMICAL BULK PACKAGES!**



MIL-DTL-23053/5C,  
CLASS 1, 2  
UL STANDARD 224  
CSA STANDARD 198  
RoHS COMPLIANT

# **FIT® Preferred Heat Shrink Products**

## **GENERAL PURPOSE, IRRADIATED POLYOLEFIN**

**FIT®-221**

Alpha Part No. And Size	Minimum Supplied I.D.		Maximum Recovered I.D.		Nom. Recovered Wall Thickness		Standard Packages					
	Inches	mm	Inches	mm	Inches	mm	4 Ft. Lengths Total Ftg.	Tot. Ftg.	Spools Tot. Ftg.	Tot. Ftg.	No. Cut Pieces 6 Inch	No. Cut Pieces 1/2" or 1"
<b>FIT-221-3/64</b>	0.046	1,17	0.023	0,58	0.016	0,41	100	1000			40	1000
<b>FIT-221-1/16</b>	0.063	1,60	0.031	0,78	0.017	0,43	100	1000	100	70	36	1000
<b>FIT-221-3/32</b>	0.093	2,36	0.046	1,17	0.020	0,50	100	500	100	65	32	1000
<b>FIT-221-1/8</b>	0.125	3,18	0.062	1,58	0.020	0,50	100	500	100	60	28	1000
<b>FIT-221-3/16</b>	0.187	4,75	0.093	2,36	0.020	0,50	100	500	100	50	24	1000
<b>FIT-221-1/4</b>	0.250	6,35	0.125	3,18	0.025	0,63	100	250	100	40	20	1000
<b>FIT-221-3/8</b>	0.375	9,53	0.187	4,75	0.025	0,63	100	200	50	35	16	1000
<b>FIT-221-1/2</b>	0.500	12,70	0.250	6,35	0.025	0,63	20	150	50	32	14	-
<b>FIT-221-3/4</b>	0.750	19,10	0.375	9,53	0.030	0,76	20	250	50	24	12	-
<b>FIT-221-1</b>	1.000	25,40	0.500	12,70	0.035	0,88	20	250	50	16	8	-
<b>FIT-221-1-1/2</b>	1.500	38,10	0.750	19,10	0.040	1,02	20	125	-	-	5	-
<b>FIT-221-2</b>	2.000	50,80	1.000	25,40	0.045	1,16	20	125	-	-	3	-
<b>FIT-221-3</b>	3.000	76,20	1.500	38,10	0.050	1,27	8	100	-	-	2	-
<b>FIT-221-4</b>	4.000	101,60	2.000	50,80	0.055	1,40	8	50	-	-	1	-

### **SPOOL COLOR AVAILABILITY CHART**

<b>FIT-221 Tubing Size</b>	<b>Put-Up</b>	<b>Colors</b>
3/64"	1000'	Black, Clear
1/16"	1000'	All Colors*
	100'	Black, Clear
	70'	All Colors
3/32"	500'	All Colors
	100'	Black, Clear
	65'	All Colors
	65'	All Colors
1/8"	500'	All Colors
	100'	Black, Clear
	60'	All Colors
3/16"	500'	All Colors
	100'	Black, Clear
	50'	All Colors
1/4"	250'	All Colors
	100'	Black, Clear
	40'	All Colors

<b>FIT-221 Tubing Size</b>	<b>Put-Up</b>	<b>Colors</b>
3/8"	200'	All Colors
	50'	Black, Clear
	35'	All Colors
1/2"	150'	All Colors
	50'	Black, Clear
	32'	All Colors
3/4"	250'	All Colors
	50'	Black, Clear
	24"	All Colors
1"	250"	All Colors
	50"	Black, Clear
	16"	All Colors
1-1/2"	125'	Black, Clear
2"	125'	Black, Clear
3"	100'	Black, Clear
4"	50'	Black, Clear

\*All colors include black, white, clear, red, yellow, blue, green

**SEE PAGE 116  
FOR  
ECONOMICAL BULK PACKAGES!**

**Polyolefin**

"A family of thermoplastics based upon the unsaturated hydrocarbons known as olefins. When combined with butylene or styrene polymers, they form compounds such as polyethylene and polypropylene."



## MD Protests LUH

Lynn Tilton, acting CEO of MD Helicopters Inc., based in Mesa, Ariz., has filed an official protest with the United States Army over its decision to award the multi-billion dollar Light Utility Helicopter (LUH) contract to a European conglomerate, EADS North America and Eurocopter, instead of an American company.

"I am profoundly disappointed by this decision," said Tilton from her office in New York. "When the U.S. Army passes over an American company at a lower price, for a European company at a higher price, it sends a very strong message. When U.S. companies like MDHI provide high quality products at outstanding value and cannot get support within their own country, it is a very sad day for both American companies and American workers. The United States is struggling to stay competitive with its global neighbors and our own taxpayer money is being poured into the coffers of foreign companies when that money could be going to rebuild

this industry in our country. It is a true injustice."

Of particular concern, Tilton said an error in the Army's interpretation of MDHI's financial model resulted in the company's bid coming in at \$800 million US above the Eurocopter bid, instead of \$5 million below as intended.

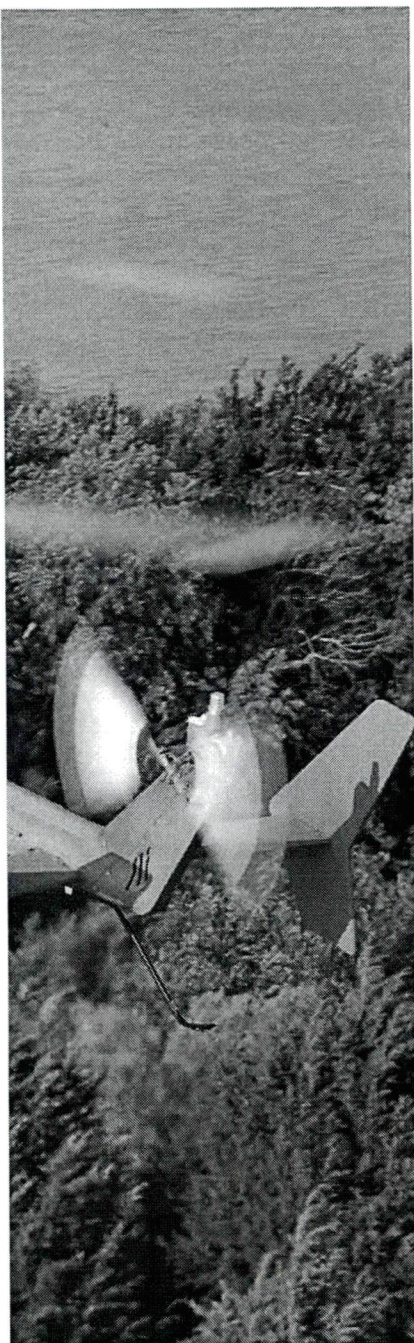
Tilton is also the founder and principal of Patriarch Partners LLC, a \$5-billion US private investment firm that, through its investment funds, holds a controlling interest in MDHI. Patriarch acquired a controlling interest in MDHI last summer when that company was on the brink of insolvency (see p.10, *Vertical*, Oct-Nov 2005). Over the past year, Patriarch has invested considerable capital and resources to turn MDHI's fortunes around (see p.56, *Vertical*, Feb-Mar 2006), but Tilton believes the Army did not take this into consideration in its final decision.

"The process was seriously flawed and perfunctory at best," said Tilton. "Had the military taken the time and expended the energy to conduct serious diligence and come out and

kick the tires, the conclusion would have been inescapable. The simple reality is that there was no attention to substantive matters. There is absolutely no question in my mind that the MDHI bid offered the best overall product and value." She added, "I have no doubt that MDHI met or exceeded all U.S. Army requirements."

Under the Army's contract procedures, official protests are to be decided within 35 days, during which time all activity on the contract is suspended. To date, neither Bell Helicopter nor AgustaWestland have filed a protest.

Despite the setback, Tilton said "The loss of the LUH contract should not be misinterpreted by our customers. We certainly are disappointed, but we aren't going to be deterred. We're not cutting back on production; we can sell whatever we produce. In the end, we'll prove the [Army's] decision was the wrong one." Tilton added that she will continue in the role of MDHI's acting CEO while the company continues to improve product supply and customer support.



100 engines per year within the next eight years.

The Army said the new helicopters will fill an important need for active-duty soldiers and the National Guard, who will use the UH-145 to replace aging aircraft at training centers. The ships will also be used in other non-combat environments, including security missions based in the U.S.



While MD Helicopters lost in its bid to offer the MD Explorer, the company says that it is not deterred and will continue to rejuvenate the company. MD Photo



# PRO. TECHNIQUE

No: FIT - 221 - 1 - 250-CL  
1 Mètre  
ou 4'

(on le coupe nous en 5")

Alpha Wine

---



**1- Installer Shrink:**

- Utiliser Shrink Transparent de largeur 1" en longueurs de 5". Insérer dans U clips.
- Chauffer au four 350deg. durant 30 minutes. (Utiliser papier alum. sur tôle et placer les clips sur leur côté.

**2- Inspecter composantes:**

- Utiliser plans d'inspection prescrits. (Voir manuel DHR, section intitulée LN)
- Assigner no de lot "LN-yymmdd-xx". (xx étant le séquentiel).

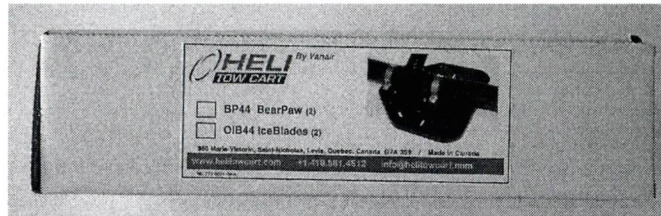
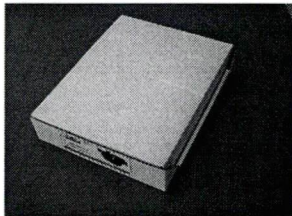
**3- Effectuer assemblage des BearPaw:**

- Assembler toutes les composantes excluant les Uclips.
- Assembler les IceBlades (si applicable)

**4- Inspecter produit fini:**

- Utiliser plan d'inspection prescrit. (Voir manuel DHR, section intitulée LNF)
- Assigner no de lot "LNF-yymmdd-xx". (xx étant le séquentiel).

**5- Préparer boîte:**



- Utiliser Boîte Aubut. 17"x13"x3" (Poids boîte une fois remplie: 5lbs)
- Apposer étiquette 273-0001-04-A sur le côté de la boîte

**6- Réaliser emballage:**

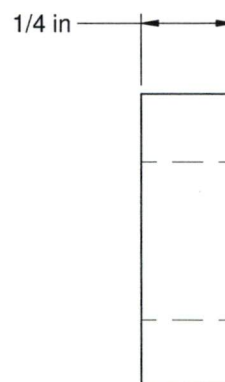
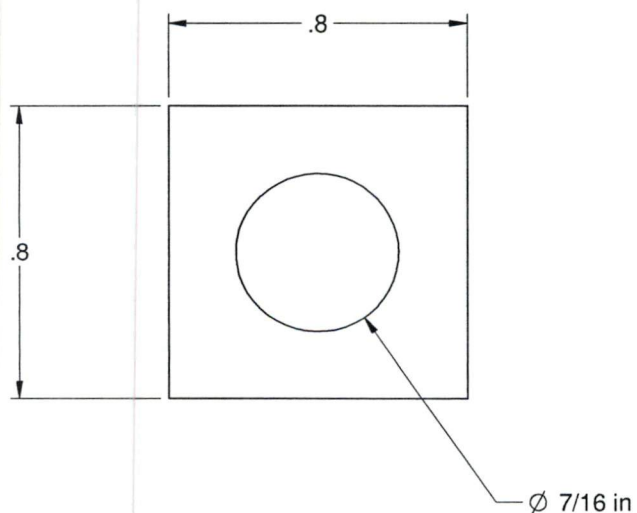
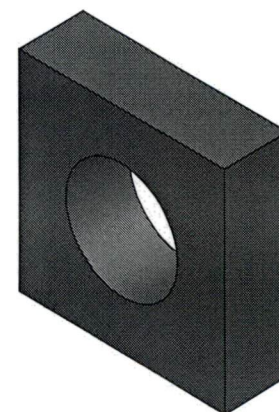
- Placer le matériel suivant dans deux sacs identifiés des étiquettes appropriées suivantes.
- Insérer quantités tel qu'indiqué entre les parenthèses

<p><b>U shaped clips (4)</b></p>	<p><b>Information Kit</b></p> <ul style="list-style-type: none"> <li>(1) Installation instruction</li> <li>(1) STC Canadian certificate copy SH06-24</li> <li>(1) STC FAA certificate copy</li> <li>(1) STC EASA certificate copy</li> <li>(1) Helitowcart Authorized Release Certificate</li> </ul>
----------------------------------	--

- Froisser papier d'emballage et déposer dans le fond de la boîte
- Déposer les deux pad noirs pré-assemblés
- Déposer le sac de U clips sur les cotés
- Froisser papier d'emballage et déposer sur dessus du matériel
- Déposer le sac de documents (\*\*INCLURE CERTIFICAT DE RELEASE)
- Sceller & Cocher contenu de la boîte sur étiquette de la boîte.
- Si Iceblade s'assurer qu'elles ont été installées.

**7- Vérifier documentation & Émettre " Authorized Release Certificate":**

- Remplir le formulaire F40-01.
- Assigner bon no de lot de produit fini (no LNF) et indiquer no séquentiel de certificat (no RC).\*\*\*



R01	Initial issue	08-08-06	G.L.
Rev.	Description	Date	By

<b>TOLERANCES</b> 1/X ± 1/32" X.XX ± 0.010" X.XXX ± 0.005" ANGLE ± 1° PROJECTION:				<b>Vanair inc.</b> 860, Marie-Victorin St-Nicolas, Lévis (Québec) Canada, G7A 3S9 Tél. : (418) 561-4512 Fax : (418) 836-2291 <a href="http://www.helitowcart.com">www.helitowcart.com</a>		THIS DOCUMENT IS PROPERTY OF VANAIR INC. WRITTEN PERMISSION FROM VANAIR INC. SHALL BE OBTAINED PRIOR TO COPYING, USING OR MODIFYING.	
		Titre / Title: <b>Bearpaw - Filler Block 1/4"</b>		Matériel / Material: <b>UHMW</b>		Page #: <b>1 de 1</b>	
Dessiné par / Drawing by: <b>G. Lapointe</b>		Date: (yyyy-mm-dd) <b>2006-08-08</b>		Format : <b>A</b>		Échelle / Scale: <b>1 : 1</b>	
Vérifié par / Checked by:		Date: (yyyy-mm-dd)		Numéro dessin / Drawing Number: <b>VNR099</b>		Rev.#: <b>R01</b>	
Approuvé par / Approved by:		Date: (yyyy-mm-dd)		Numéro de pièce / Part Number: <b>314-0012-01-A</b>		Rev.#:	



**314-0011-00-B**  
**BearPaw Model BP44**  
**Installation Instructions - R44**

**TABLE OF CONTENTS:**

<b>INTRODUCTION</b>	<b>p.2</b>
Scope	p.2
General	p.2
Helicopter Effectivity	p.2
Installer Responsibilities	p.2
<b>INSTALLATION</b>	<b>p.3</b>
BearPaw Installation	p.3
BearPaw Removal	p.4
Weight & Balance	p.4
Parts List	p.4
<b>INSPECTION</b>	<b>p.5</b>
Life Limited Items	p.5
Pre-Flight	p.5
Periodic Inspection Schedule	p.5
100 Hour or Yearly Inspection Details	p.5
Overhaul Requirements	p.5
<b>REVISIONS &amp; APPROVAL</b>	<b>p.6</b>
Annex A (BearPaw Assembly Drawing)	
Annex B (BearPaw Pad Drawing)	





314-0011-00-B  
**BearPaw Model BP44**  
**Installation Instructions - R44**

## INTRODUCTION

### Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw for your Robinson R44.

### General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table (1):

**Table 1 – Helitowcart Customer Support**

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	860 Marie-Victorin St-Nicholas, Levis, Quebec, Canada, G7A 3S9	Tel:1 (418) 561-4512 Fax:1 (418) 836-2291 <a href="mailto:info@helitowcart.com">info@helitowcart.com</a>

### Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

**Table 2 – Robinson Helicopter Effectivity**

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0271 thru 9999	H11NM
R44 II	1140, 10001 and subsequent	H11NM

### Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

## INSTALLATION

### BearPaw Installation

#### Reference Documentation:

- [1] Robinson R44 - Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
- [2] Annex A – BearPaw Assembly Drawing (VNR083)

#### Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

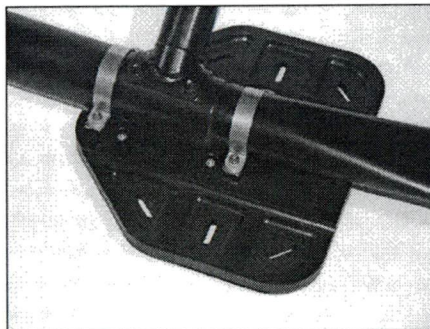
#### Step 2: BearPaw Preparation

- With IceBlade Option: Install ice blades (Qty:2) under BearPaw pad as per drawing (VNR083) Ref [2];
- With IceBlade Option: Insert washer (Washer P/N 263-0001-17) through threaded part of the ice blade and secure with nut (P/N 262-0001-17);
- Position the BearPaw under skid at the aft intersection with the cross tube as per figure 1 with narrow edge pointing forward.

#### Step 3: BearPaw Set Up

- Insert washers (P/N 263-0001-17) through all four bolts: 2x(P/N261-0002-17) & 2x(261-0003-17);
- Insert bolts(P/N261-0002-17) & (261-0003-17) and washer (Washer P/N 263-0001-17) through BearPaw pad as per drawing (VNR083) Ref [2];
- Insert filler blocks (P/N314-0012-01) & (P/N314-0014-01) at front of BearPaw& Insert filler blocks (P/N314-0015-01) at rear of BearPaw as per drawing (VNR083) Ref [2];
- The use of filler blocks mentioned above may be replaced or complemented by the use of washers (P/N 263-0001-17). Bolts (P/N261-0002-17) & (261-0003-17) may be replaced by longer or shorter AN4 bolts as required.
- Insert both U-shaped clips (P/N 314-0006-15) through bolts: 2x(P/N261-0002-17) & 2x(261-0003-17);
- Insert slotted clip supports (P/N 314-0007-15) through all four bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Max. torque on nuts 60 in.-lb;
- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

**Figure 1 - Installed BearPaw Model BP44**





### BearPaw Removal

#### Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

#### Step 2: BearPaw Removal

- Remove nuts (P/N 262-0001-17), slotted clip support (P/N 314-0007-15) on U-shaped clips (P/N 314-0006-15),
- Remove U-shaped clips (P/N 314-0006-15), filler blocks (P/N314-0012-01), (P/N314-0014-01) & (P/N314-0015-01) and remove BearPaw pad (P/N 314-0001-01);
- Inspect skid tubes to confirm serviceability
- Re-install aft wearshoe with screws as per reference [1];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

### Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

**Table 3 – Weight & Balance Data**

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	5.9 Lb 2.7 Kg	0.0in. (0.0mm)	0.0lb-kG (0.0mm-kG)	128.5 in 3.26 m	758.1 in-lb 8.8 m-kG

### Parts Lists

The Helitowcart BearPaw detailed parts list is as follow:

**Table 4 – Parts List**

Description	Qty	Part No.	Drawing no./name
<b>BearPaw Model BP44</b>	<b>1</b>	<b>112-0001-00</b>	<b>VNR083 / BearPaw Assembly</b>
BearPaw pad	1	314-0001-01	VNR088 / BearPaw - Pad
U Shaped Clips	2	314-0006-15	VNR087 / BearPaw - U Shaped Clips
Slotted Clip Support	4	314-0007-15	VNR089 / BearPaw - Slotted Clip Support
Filler blocks 1/4	2	314-0012-01	VNR099 / BearPaw – Filler block ¼"
Filler blocks 3/32	2	314-0014-01	VNR103 / BearPaw – Filler block 3/32
Filler blocks 1/8	2	314-0015-01	VNR104 / BearPaw – Filler block 1/8
Bolts	2	261-0002-17	Bolt- AN4-15
Bolts	2	261-0003-17	Bolt- AN4-16
Nuts	4	262-0001-17	Nut- MS20-365-428
Washers	8	263-0001-17	Washer – AN960-416
Shrink	2	314-0016-00	BearPaw – Shrink Specifications & Installation
<b>IceBlade Option Model OIB</b>	<b>2</b>	<b>314-0005-15</b>	<b>VNR086 / IceBlade Assembly</b>
Nuts	4	262-0001-17	Nut- MS20-365-428
Washers	4	263-0001-17	Washer – AN960-416



## INSPECTION

### Life Limited Items

Three are no life limited items for the Helitowcart BearPaw.

### Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured,
- Check that BearPaws are free from visible damage,
- If damage is found, verify allowable damage according to:  
 Table 5 – Tolerances for cracks & wear, &  
 Annex B – BearPaw Allowable Damage Drawing (VNR088 page 2 of 2)

### Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 300 flying hours or yearly whichever comes first.
- The Helitowcart BearPaw can be inspected concurrently with the R44 landing gear inspection.
- Recommended tolerance for performance of inspection is +/- 10% of the 300 hours period.
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

### 300 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal",
- Inspect all parts for damage & wear. See table & figure below for allowable damage,
- Replace all damaged parts,
- Replace parts worn beyond the tolerances indicated below.
- See Tolerances for cracks & wear:  
 Table 5 – Tolerances for cracks & wear, &  
 Annex B – BearPaw Allowable Damage Drawing (VNR088 page 2 of 2)

**Table 5 – Tolerances for Cracks & Wear**

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,375	0,075	<u>Stiffeners</u> : NO cracks in stiffeners.  <u>Pockets</u> : Cracks are acceptable in the Helitowcart BearPaw pocket areas to a maximum length of 0,5 provided they are 0,25 away from the stiffener radius change. Stop drill cracks with a 0,125 hole.
D	0,350	0,050	
E	N/A	N/A	No cracks allowed in zone E



314-0011-00-B  
**BearPaw Model BP44**  
**Installation Instructions - R44**

**Overhaul Requirements**


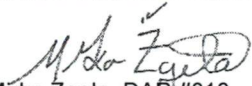
- Not applicable for the designated application of this device.

**REVISIONS & APPROVAL**

**Revisions**

Date	Rev	Nature of Revisions
September 7, 2006	B	- Added filler blocks and heat shrink to product list. - Modified recommended bolt models (lengthened) - Revised inspection requirements from 100 hour to 300 hour intervals. - Identification of the IceBlade assembly as an optional feature.
June 12, 2006	A	Initial issue

**Approval**

Internal Approval :		
Helitowcart inc.	 Lucien Barbeau, President	September 7, 2006  Date:
External Approval :		
Transport Canada	 Mirko Zgela, DAR #310	September 7, 2006

**Annex A**

See: BearPaw Assembly, drawing no. VNR083.

**Annex B**

See: BearPaw Pad, drawing no. VNR088. Page 2 of 2.



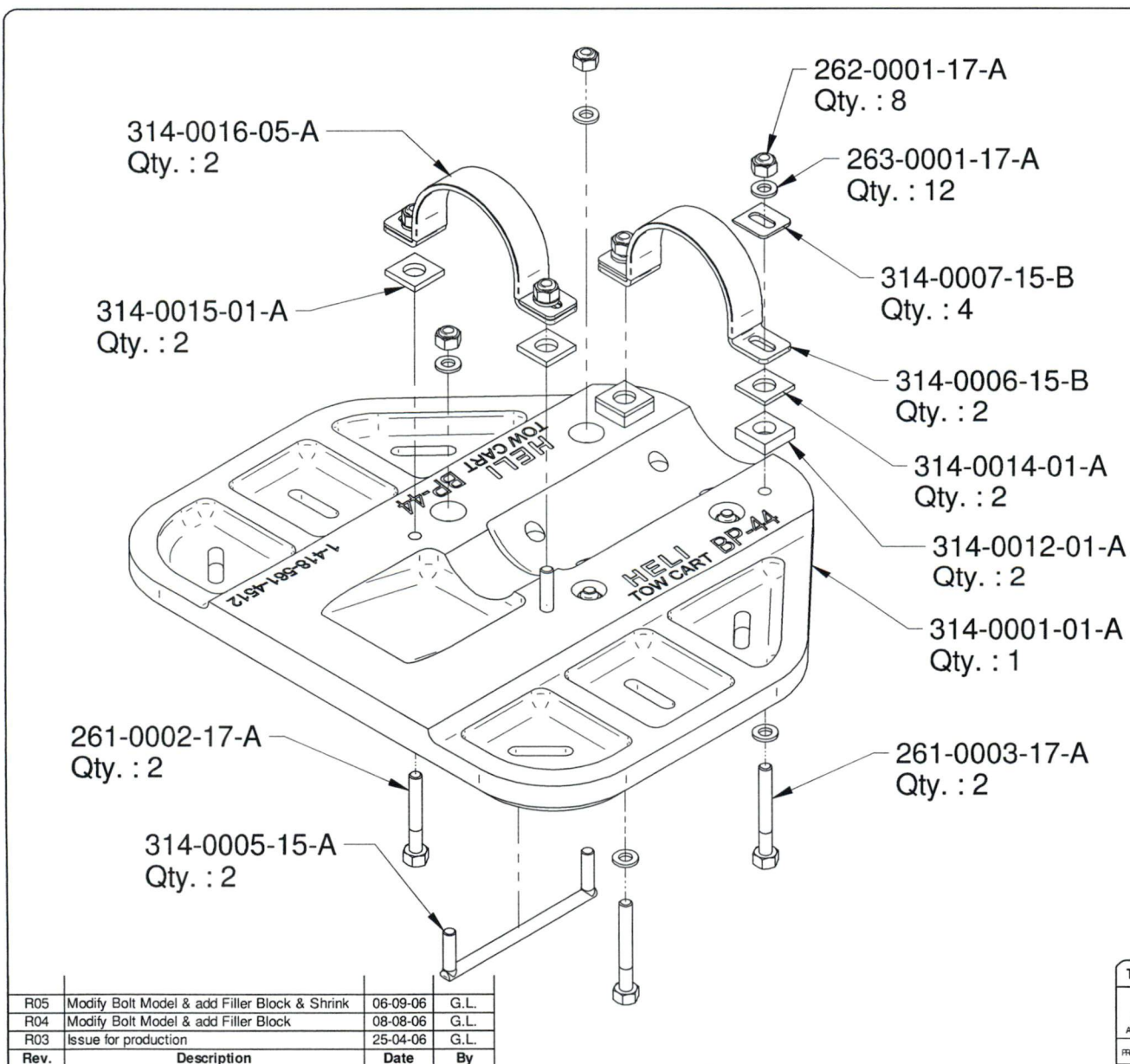
314-0011-00-B  
**BearPaw Model BP44**  
**Installation Instructions - R44**

---

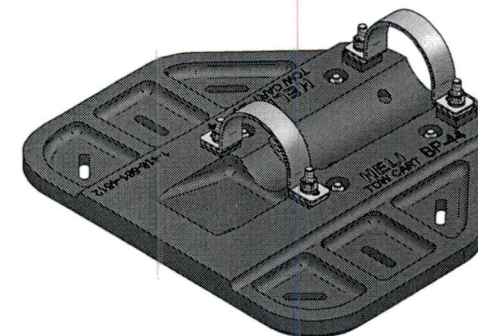
**Annex A**

BearPaw Assembly, Drawing no. VNR083.  
P/N 112-0001-00-C





N°	Qty	Description	Part #
1*	1	Bearpaw - Pad	314-0001-01-A
2*	2	Bearpaw - Iceblade assembly	314-0005-15-A
3*	2	Bearpaw - U Shaped clip	314-0006-15-B
4*	4	Bearpaw - Slotted clip support	314-0007-15-B
5*	8	Nut MS20-365-428	262-0001-17-A
6*	12	Washer AN960-416	263-0001-17-A
7*	2	Bolt AN4-15A	261-0002-17-A
8*	2	Bearpaw - Filler Block 1/4"	314-0012-01-A
9*	2	Bolt AN4-16A	261-0003-17-A
10*	2	Bearpaw - Shrink 1"x5"	314-0016-05-A
11*	2	Bearpaw - Filler Block 1/8"	314-0015-01-A
12*	2	Bearpaw - Filler Block 3/32"	314-0014-01-A



NOTE : Iceblade assembly can be omitted from installation (Optional)

<b>TOLERANCES</b> 1/X ± 1/32" X.XX ± 0.010" X.XXX ± 0.005" ANGLE ± 1°		<b>Time / Title</b> Designé par / Drawing by G. Lapointe Date (yyyy-mm-dd) 2006-04-25		<b>Format</b> B Echelle / Scale N/A		<b>Page</b> 1 de 1	
		<b>Matériel / Materials</b> VNR083 112-0001-00-C		<b>Rev #</b> R05		<b>THIS DOCUMENT IS PROPERTY OF VANAIR INC. WRITTEN PERMISSION FROM VANAIR INC. SHALL BE OBTAINED PRIOR TO COPYING, USING OR MODIFYING.</b>	

Rev.	Description	Date	By
R05	Modify Bolt Model & add Filler Block & Shrink	06-09-06	G.L.
R04	Modify Bolt Model & add Filler Block	08-08-06	G.L.
R03	Issue for production	25-04-06	G.L.



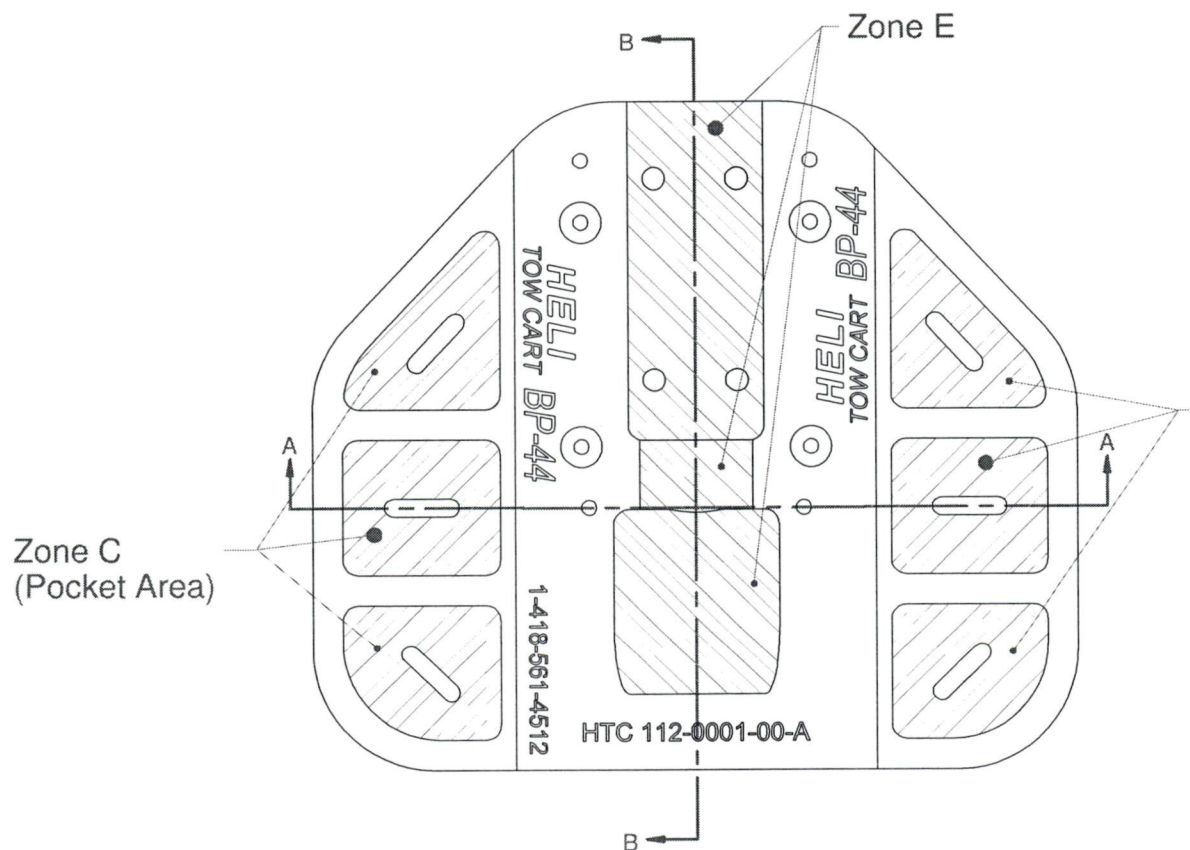
314-0011-00-B  
**BearPaw Model BP44**  
**Installation Instructions - R44**

---

**Annex B**

BearPaw Pad, Drawing no. VNR088. Page 2 of 2.  
P/N 314-0001-01-A

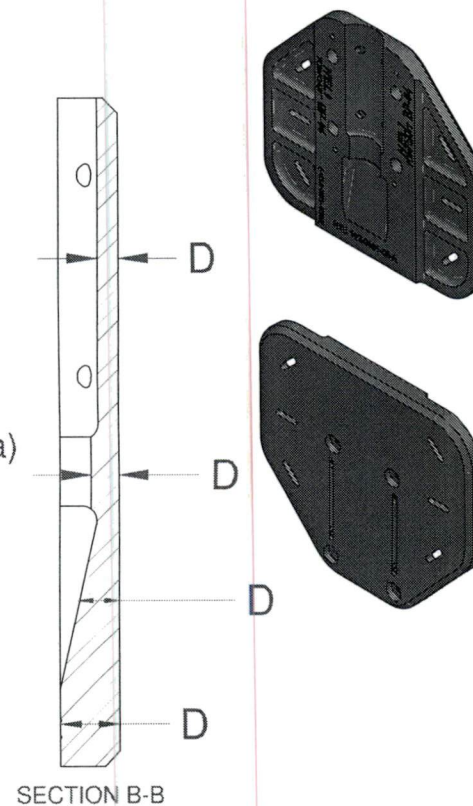




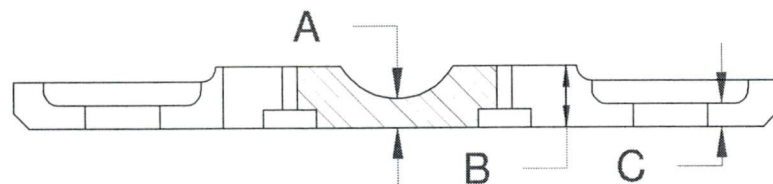
Zone C  
(Pocket Area)

Zone E

Zone C  
(Pocket Area)



SECTION B-B



SECTION A-A

Rev.	Description	Date	By
R03	Issue for production	04-04-06	G.L.
R02	Révision Générale	23-03-06	G.L.
R01	Initial issue	27-02-06	G.L.

# TOLERANCES

1/X ± 1/32"
X/XX ± 0.010"
X/XXX ±
ANGLE ± 1°

PROJECTION

		<b>Vanair Inc.</b> 860, Marie-Victorin St-Nicolas, Lévis (Québec) Canada, G7A 3S9 Tél. : (418) 561-4512 Fax : (418) 836-2291 www.helitowcart.com		THIS DOCUMENT IS PROPERTY OF VANAIR INC. WRITTEN PERMISSION FROM VANAIR INC. SHALL BE OBTAINED PRIOR TO COPYING, USING OR MODIFYING.	
Titre / Title <b>Bearpaw - Pad</b>		Matériau / Material See Note		Page # 2 de 2	
Dessiné par / Drawing by G. Lapointe		Date (yyyy-mm-dd) 2006-04-24		Echelle / Scale 1 : 2	
Vérifié par / Checked by		Date (yyyy-mm-dd)		Numéro dessin / Drawing Number VNR088	
Approuvé par / Approved by		Date (yyyy-mm-dd)		Numéro de pièce / Part Number 314-0001-01-A	
				Rev # R03	

**rev.B Preliminary (2006 09 06)**

**TABLE OF CONTENTS:**

<b>INTRODUCTION</b>	<b>p.2</b>
Scope	p.2
General	p.2
Helicopter Effectivity	p.2
Installer Responsibilities	p.2
<b>INSTALLATION</b>	<b>p.3</b>
BearPaw Installation	p.3
BearPaw Removal	p.4
Weight & Balance	p.4
Parts List	p.4
<b>INSPECTION</b>	<b>p.5</b>
Life Limited Items	p.5
Pre-Flight	p.5
Periodic Inspection Schedule	p.5
100 Hour or Yearly Inspection Details	p.5
Overhaul Requirements	p.5
<b>REVISIONS &amp; APPROVAL</b>	<b>p.6</b>
Annex A (BearPaw Assembly Drawing)	
Annex B (BearPaw Pad Drawing)	

## INTRODUCTION

### Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw for your Robinson R44.

### General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table (1):

**Table 1 – Helitowcart Customer Support**

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	860 Marie-Victorin St-Nicholas, Levis, Quebec, Canada, G7A 3S9	Tel:1 (418) 561-4512 Fax:1 (418) 836-2291 <a href="mailto:info@helitowcart.com">info@helitowcart.com</a>

### Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

**Table 2 – Robinson Helicopter Effectivity**

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0271 thru 9999	H11NM
R44 II	1140, 10001 and subsequent	H11NM

### Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.



## INSTALLATION

### BearPaw Installation

#### Reference Documentation:

- [1] Robinson R44 - Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
- [2] Annex A – BearPaw Assembly Drawing (VNR083)

#### Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

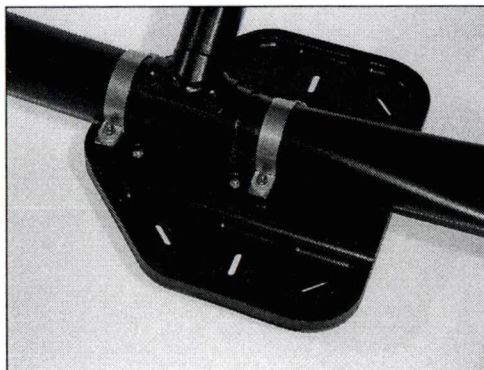
#### Step 2: BearPaw Preparation

- If IceBlade Option: Install ice blades (Qty:2) under BearPaw pad as per drawing (VNR083) Ref [2];
- If IceBlade Option: Insert washer (Washer P/N 263-0001-17) through threaded part of the ice blade and secure with nut (P/N 262-0001-17);
- Position the BearPaw under skid at the aft intersection with the cross tube as per figure 1 with narrow edge pointing forward.

#### Step 3: BearPaw Set Up

- Insert washers (P/N 263-0001-17) through all four bolts: 2x(P/N261-0002-17) & 2x(261-0003-17);
- Insert bolts(P/N261-0002-17) & (261-0003-17) and washer (Washer P/N 263-0001-17) through BearPaw pad as per drawing (VNR083) Ref [2]
- Insert filler blocks (P/N314-0012-01) & (P/N314-0014-01) at front of BearPaw& Insert filler blocks (P/N314-0015-01) at rear of BearPaw as per drawing (VNR083) Ref [2];
- The use of filler blocks mentioned above may be replaced or complemented by the use of washers (P/N 263-0001-17). Bolts (P/N261-0002-17) & (261-0003-17) may be replaced by longer or shorter AN4 bolts as required.
- Insert both U-shaped clips (P/N 314-0006-15) through bolts: 2x(P/N261-0002-17) & 2x(261-0003-17);
- Insert slotted clip supports (P/N 314-0007-15) through all four bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Max. torque on nuts 60 in.-lb;
- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

**Figure 1 - Installed BearPaw Model BP44**



### BearPaw Removal

#### Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

#### Step 2: BearPaw Removal

- Remove nuts (P/N 262-0001-17), slotted clip support (P/N 314-0007-15) on U-shaped clips (P/N 314-0006-15),
- Remove U-shaped clips (P/N 314-0006-15), filler blocks (P/N314-0012-01), (P/N314-0014-01) & (P/N314-0015-01) and remove BearPaw pad (P/N 314-0001-01);
- Inspect skid tubes to confirm serviceability
- Re-install aft wearshoe with screws as per reference [1];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

### Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

**Table 3 – Weight & Balance Data**

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	5.9 Lb 2.7 Kg	0.0in. (0.0mm)	0.0lb-kG (0.0mm-kG)	128.5 in 3.26 m	758.1 in-lb 8.8 m-kG

### Parts Lists

The Helitowcart BearPaw detailed parts list is as follow:

**Table 4 – Parts List**

Description	Qty	Part No.	Drawing no./name
<b>BearPaw Model BP44</b>	<b>1</b>	<b>112-0001-00</b>	<b>VNR083 / BearPaw Assembly</b>
BearPaw pad	1	314-0001-01	VNR088 / BearPaw - Pad
U Shaped Clips	2	314-0006-15	VNR087 / BearPaw - U Shaped Clips
Slotted Clip Support	4	314-0007-15	VNR089 / BearPaw - Slotted Clip Support
Filler blocks 1/4"	2	314-0012-01	VNR099 / BearPaw – Filler block ¼"
Filler blocks 3/32"	2	314-0014-01	VNR099 / BearPaw – Filler block 3/32"
Filler blocks 1/8"	2	314-0015-01	VNR099 / BearPaw – Filler block 1/8"
Bolts	2	261-0002-17	Bolt- AN4-15
Bolts	2	261-0003-17	Bolt- AN4-16
Nuts	4	262-0001-17	Nut- MS20-365-428
Washers	8	263-0001-17	Washer – AN960-416
Shrink	2	314-0016-00	BearPaw – Shrink Specifications & Installation
<b>IceBlade Option Model OIB</b>	<b>2</b>	<b>314-0005-15</b>	<b>VNR086 / IceBlade Assembly</b>
Nuts	4	262-0001-17	Nut- MS20-365-428
Washers	4	263-0001-17	Washer – AN960-416



## INSPECTION

### Life Limited Items

Three are no life limited items for the Helitowcart BearPaw.

### Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured,
- Check that BearPaws are free from visible damage,
- If damage is found, verify allowable damage according to:  
 Table 5 – Tolerances for cracks & wear, &  
 Annex B – BearPaw Allowable Damage Drawing (VNR088 page 2 of 2)

### Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 100 flying hours.
- The Helitowcart BearPaw can be inspected concurrently with the R44 landing gear inspection.
- Recommended tolerance for performance of inspection is +/- 10% of the 100 hours period.

### 100 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal",
- Inspect all parts for damage & wear. See table & figure below for allowable damage,
- Replace all damaged parts,
- Replace parts worn beyond the tolerances indicated below.
- See Tolerances for cracks & wear:  
 Table 5 – Tolerances for cracks & wear, &  
 Annex B – BearPaw Allowable Damage Drawing (VNR088 page 2 of 2)

**Table 5 – Tolerances for Cracks & Wear**

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,375	0,075	<u>Stiffeners</u> : NO cracks in stiffeners.  <u>Pockets</u> : Cracks are acceptable in the Helitowcart BearPaw pocket areas to a maximum length of 0,5" provided they are 0,25" away from the stiffener radius change. Stop drill cracks with a 0,125" hole.
D	0,350	0,050	
E	N/A	N/A	No cracks allowed in zone E

### Overhaul Requirements

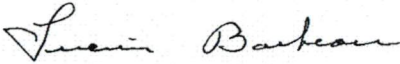
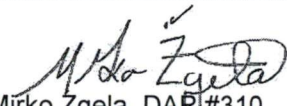
- Not applicable for the designated application of this device.



**REVISIONS & APPROVAL****Revisions**

Date	Rev	Nature
September 7, 2006	B	-Added Filler blocks and Shrink to product list. -Modified recommended bolt model -Added information relating the option status of Iceblades.
June 12, 2006	A	Initial issue

**Approval**

Internal Approval :		
Helitowcart inc.	 Lucien Barbeau, President	September 7, 2006 Date:
External Approval :		
Transport Canada	 Mirko Zgela, DAR #310	June 12, 2006 Date:

**Annex A**

See: BearPaw Assembly, drawing no. VNR083.

**Annex B**

See: BearPaw Pad, drawing no. VNR088. Page 2 of 2.

**Annex A**

BearPaw Assembly, Drawing no. VNR083.  
P/N 112-0001-00 Rev.B





**Annex B**

BearPaw Pad, Drawing no. VNR088. Page 2 of 2.  
P/N 314-0001-01 Rev.B



**rev.B Preliminary**

**TABLE OF CONTENTS:**

<b>INTRODUCTION</b>	<b>p.2</b>
Scope	p.2
General	p.2
Helicopter Effectivity	p.2
Installer Responsibilities	p.2
<b>INSTALLATION</b>	<b>p.3</b>
BearPaw Installation	p.3
BearPaw Removal	p.4
Weight & Balance	p.4
Parts List	p.4
<b>INSPECTION</b>	<b>p.5</b>
Life Limited Items	p.5
Pre-Flight	p.5
Periodic Inspection Schedule	p.5
100 Hour or Yearly Inspection Details	p.5
Overhaul Requirements	p.5
<b>REVISIONS &amp; APPROVAL</b>	<b>p.6</b>
Annex A (BearPaw Assembly Drawing)	
Annex B (BearPaw Pad Drawing)	



## INTRODUCTION

### Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw for your Robinson R44.

### General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table (1):

**Table 1 – Helitowcart Customer Support**

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	860 Marie-Victorin St-Nicholas, Levis, Quebec, Canada, G7A 3S9	Tel:1 (418) 561-4512 Fax:1 (418) 836-2291 <a href="mailto:info@helitowcart.com">info@helitowcart.com</a>

### Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

**Table 2 – Robinson Helicopter Effectivity**

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0271 thru 9999	H11NM
R44 II	1140, 10001 and subsequent	H11NM

### Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

## INSTALLATION

### BearPaw Installation

#### Reference Documentation:

- [1] Robinson R44 - Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
- [2] Annex A – BearPaw Assembly Drawing (VNR083)

#### Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

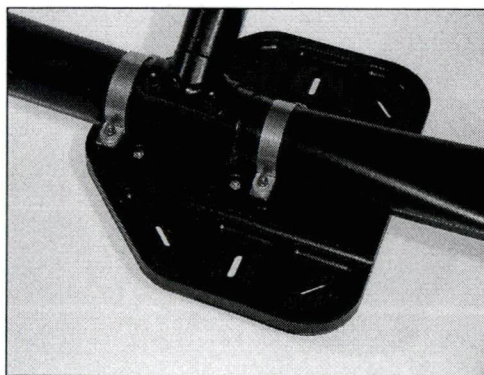
#### Step 2: BearPaw Preparation

- If IceBlade Option: Install ice blades (Qty:2) under BearPaw pad as per drawing (VNR083) Ref [2];
- If IceBlade Option: Insert washer (Washer P/N 263-0001-17) through threaded part of the ice blade and secure with nut (P/N 262-0001-17);
- Position the BearPaw under skid at the aft intersection with the cross tube as per figure 1 with narrow edge pointing forward.

#### Step 3: BearPaw Set Up

- Insert washers (P/N 263-0001-17) through all four bolts: 2x(P/N261-0001-17) & 2x(261-0003-17);
- Insert bolts(P/N261-0001-17) & (261-0003-17) and washer (Washer P/N 263-0001-17) through BearPaw pad as per drawing (VNR083) Ref [2];
- Insert filler blocks (P/N314-0012-01) & (P/N314-0014-01) at front of BearPaw& Insert filler blocks (P/N314-0015-01) at rear of BearPaw as per drawing (VNR083) Ref [2];
- The use of filler blocks mentioned above may be replaced or complemented by the use of washers (P/N 263-0001-17). Bolts (P/N261-0001-17) & (261-0003-17) may be replaced by longer or shorter AN4 bolts as required.
- Insert both U-shaped clips (P/N 314-0006-15) through bolts: 2x(P/N261-0001-17) & 2x(261-0003-17);
- Insert slotted clip supports (P/N 314-0007-15) through all four bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Max. torque on nuts 60 in.-lb;
- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

**Figure 1 - Installed BearPaw Model BP44**



~~314~~. 0017. 05. A  
~~314~~. 0018. 05. A

~~Helicopter~~ at no  
date  
page 1 of -



### BearPaw Removal

#### Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

#### Step 2: BearPaw Removal

- Remove nuts (P/N 262-0001-17), slotted clip support (P/N 314-0007-15) on U-shaped clips (P/N 314-0006-15),
- Remove U-shaped clips (P/N 314-0006-15), filler blocks (P/N314-0012-01), (P/N314-0014-01) & (P/N314-0015-01) and remove BearPaw pad (P/N 314-0001-01);
- Inspect skid tubes to confirm serviceability
- Re-install aft wearshoe with screws as per reference [1];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

### Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

**Table 3 – Weight & Balance Data**

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	5.9 Lb 2.7 Kg	0.0in. (0.0mm)	0.0lb-kg (0.0mm-kg)	128.5 in 3.26 m	758.1 in-lb 8.8 m-kg

### Parts Lists

The Helitowcart BearPaw detailed parts list is as follow:

**Table 4 – Parts List**

Description	Qty	Part No.	Drawing no./name
Helitowcart BearPaw Model BP44	1	112-0001-00	VNR083 / BearPaw Assembly
BearPaw pad	1	314-0001-01	VNR088 / BearPaw - Pad
U Shaped Clips	2	314-0006-15	VNR087 / BearPaw - U Shaped Clips
Slotted Clip Support	4	314-0007-15	VNR089 / BearPaw - Slotted Clip Support
Filler blocks 1/4"	2	314-0012-01	VNR099 / BearPaw – Filler block ¼"
Filler blocks 3/32"	2	314-0014-01	VNR099 / BearPaw – Filler block 3/32"
Filler blocks 1/8"	2	314-0015-01	VNR099 / BearPaw – Filler block 1/8"
Bolts	2	261-0001-17	Bolt- AN4-15
Bolts	2	261-0003-17	Bolt- AN4-16
Nuts	8	262-0001-17	Nut- MS20-365-428
Washers	12	263-0001-17	Washer – AN960-416
Shrink	2	314-0016-00	BearPaw – Shrink Specifications & Installation (1"x5" long)

## INSPECTION

### Life Limited Items

Three are no life limited items for the Helitowcart BearPaw.

### Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured,
- Check that BearPaws are free from visible damage,
- If damage is found, verify allowable damage according to:  
 Table 5 – Tolerances for cracks & wear, &  
 Annex B – BearPaw Allowable Damage Drawing (VNR088 page 2 of 2)

### Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 100 flying hours.
- The Helitowcart BearPaw can be inspected concurrently with the R44 landing gear inspection.
- Recommended tolerance for performance of inspection is +/- 10% of the 100 hours period.

### 100 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal",
- Inspect all parts for damage & wear. See table & figure below for allowable damage,
- Replace all damaged parts,
- Replace parts worn beyond the tolerances indicated below.
- See Tolerances for cracks & wear:  
 Table 5 – Tolerances for cracks & wear, &  
 Annex B – BearPaw Allowable Damage Drawing (VNR088 page 2 of 2)

**Table 5 – Tolerances for Cracks & Wear**

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,375	0,075	<u>Stiffeners</u> : NO cracks in stiffeners.  <u>Pockets</u> : Cracks are acceptable in the Helitowcart BearPaw pocket areas to a maximum length of 0,5" provided they are 0,25" away from the stiffener radius change. Stop drill cracks with a 0,125" hole.
D	0,350	0,050	
E	N/A	N/A	No cracks allowed in zone E

### Overhaul Requirements

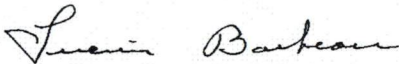
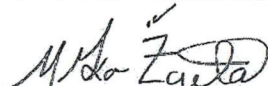
- Not applicable for the designated application of this device.



**REVISIONS & APPROVAL****Revisions**

Date	Rev	Nature
September 5, 2006	B	Added Filler blocks and Shrink to product
June 12, 2006	A	Initial issue

**Approval**

Internal Approval :		
Helitowcart inc.	 Lucien Barbeau, President	September 5, 2006 Date:
External Approval :		
Transport Canada	 Mirko Zgela, DAR #310	June 12, 2006 Date:

**Annex A**

See: BearPaw Assembly, drawing no. VNR083.

**Annex B**

See: BearPaw Pad, drawing no. VNR088. Page 2 of 2.



**Annex A**

BearPaw Assembly, Drawing no. VNR083.  
P/N 112-0001-00-A



**Annex B**

BearPaw Pad, Drawing no. VNR088. Page 2 of 2.  
P/N 314-0001-01-A







314-0011-00-A  
BearPaw Model BP44  
Installation Instructions - R44

TABLE OF CONTENTS:

<b>INTRODUCTION</b>	<b>p.2</b>
Scope	p.2
General	p.2
Helicopter Effectivity	p.2
Installer Responsibilities	p.2
<b>INSTALLATION</b>	<b>p.3</b>
BearPaw Installation	p.3
BearPaw Removal	p.4
Weight & Balance	p.4
Parts List	p.4
<b>INSPECTION</b>	<b>p.5</b>
Life Limited Items	p.5
Pre-Flight	p.5
Periodic Inspection Schedule	p.5
100 Hour or Yearly Inspection Details	p.5
Overhaul Requirements	p.5
<b>REVISIONS &amp; APPROVAL</b>	<b>p.6</b>
Annex A (BearPaw Assembly Drawing)	
Annex B (BearPaw Pad Drawing)	



314-0011-00-A  
**BearPaw Model BP44**  
**Installation Instructions - R44**

## INTRODUCTION

### Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw for your Robinson R44.

### General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table (1):

**Table 1 – Helitowcart Customer Support**

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	860 Marie-Victorin St-Nicholas, Levis, Quebec, Canada, G7A 3S9	Tel:1 (418) 561-4512 Fax:1 (418) 836-2291 <a href="mailto:info@helitowcart.com">info@helitowcart.com</a>

### Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

**Table 2 – Robinson Helicopter Effectivity**

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0271 thru 9999	H11NM
R44 II	1140, 10001 and subsequent	H11NM

### Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.



## INSTALLATION

### BearPaw Installation

#### Reference Documentation:

- [1] Robinson R44 - Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
- [2] Annex A – BearPaw Assembly Drawing (VNR083)

#### Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

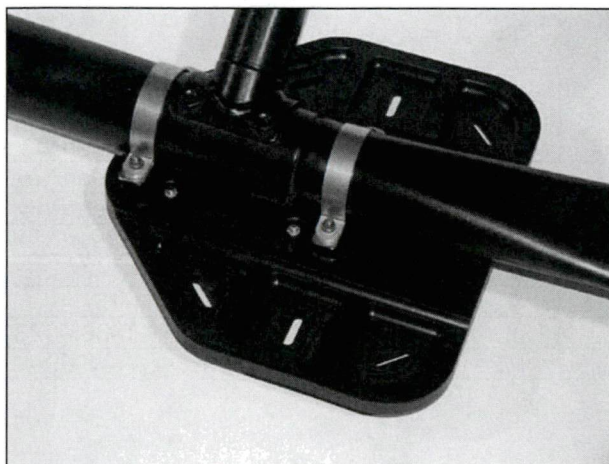
#### Step 2: BearPaw Preparation

- Install the ice blades (Qty:2) under the BearPaw pad as per drawing (VNR083) Ref [2];
- Insert washer (Washer P/N 263-0001-17) through threaded part of the ice blade and secure with nut (P/N 262-0001-17);
- Position the BearPaw under skid at the aft intersection with the cross tube as per figure 1 with narrow edge pointing forward.

#### Step 3: BearPaw Set Up

- Insert washers (P/N 263-0001-17) through all four bolts: 2x(P/N261-0001-17) & 2x(261-0002-17);
- Insert bolt(P/N261-0001-17) and washer (Washer P/N 263-0001-17) through BearPaw pad as per drawing (VNR083) Ref [2]
- Insert filler blocks (P/N314-0012-01)
- Insert both U-shaped clips (P/N 314-0006-15) through bolts: 2x(P/N261-0001-17) & 2x(261-0002-17);
- Insert slotted clip supports (P/N 314-0007-15) through all four bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Max. torque on nuts 60 in.-lb;
- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

**Figure 1 - Installed BearPaw Model BP44**



### BearPaw Removal

#### Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

#### Step 2: BearPaw Removal

- Remove nuts (P/N 262-0001-17), slotted clip support (P/N 314-0007-15) on U-shaped clips (P/N 314-0006-15),
- Remove U-shaped clips (P/N 314-0006-15), filler blocks (P/N314-0012-01) and remove BearPaw pad (P/N 314-0001-01);
- Inspect skid tubes to confirm serviceability
- Re-install aft wearshoe with screws as per reference [1];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

### Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

**Table 3 – Weight & Balance Data**

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	5.9 Lb 2.7 Kg	0.0in. (0.0mm)	0.0lb-kG (0.0mm-kG)	128.5 in 3.26 m	758.1 in-lb 8.8 m-kG

### Parts Lists

The Helitowcart BearPaw detailed parts list is as follow:

**Table 4 – Parts List**

Description	Qty	Part No.	Drawing no./name
Helitowcart BearPaw Model BP44	1	112-0001-00	VNR083 / BearPaw Assembly
BearPaw pad	1	314-0001-01	VNR088 / BearPaw - Pad
U Shaped Clips	2	314-0006-15	VNR087 / BearPaw - U Shaped Clips
Slotted Clip Support	4	314-0007-15	VNR089 / BearPaw - Slotted Clip Support
Filler blocks	2	314-0012-01	VNR099 / BearPaw – Filler block
Bolts	2	261-0001-17	Bolt- AN4-14
Bolts	2	261-0002-17	Bolt- AN4-15
Nuts	8	262-0001-17	Nut- MS20-365-428
Washers	12	263-0001-17	Washer – AN960-416



## INSPECTION

### Life Limited Items

Three are no life limited items for the Helitowcart BearPaw.

### Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured,
- Check that BearPaws are free from visible damage,
- If damage is found, verify allowable damage according to:  
 Table 5 – Tolerances for cracks & wear, &  
 Annex B – BearPaw Allowable Damage Drawing (VNR088 page 2 of 2)

### Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 100 flying hours.
- The Helitowcart BearPaw can be inspected concurrently with the R44 landing gear inspection.
- Recommended tolerance for performance of inspection is +/- 10% of the 100 hours period.

### 100 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal",
- Inspect all parts for damage & wear. See table & figure below for allowable damage,
- Replace all damaged parts,
- Replace parts worn beyond the tolerances indicated below.
- See Tolerances for cracks & wear:  
 Table 5 – Tolerances for cracks & wear, &  
 Annex B – BearPaw Allowable Damage Drawing (VNR088 page 2 of 2)

**Table 5 – Tolerances for Cracks & Wear**

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,375	0,075	<u>Stiffeners</u> : NO cracks in stiffeners.  <u>Pockets</u> : Cracks are acceptable in the Helitowcart BearPaw pocket areas to a maximum length of 0,5" provided they are 0,25" away from the stiffener radius change. Stop drill cracks with a 0,125" hole.
D	0,350	0,050	
E	N/A	N/A	No cracks allowed in zone E

### Overhaul Requirements


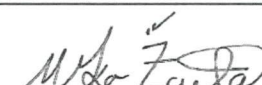
- Not applicable for the designated application of this device.



**REVISIONS & APPROVAL****Revisions**

Date	Rev	Nature
June 12, 2006	A	Initial issue

**Approval**

Internal Approval :		
Helitowcart inc.	 Lucien Barbeau, President	June 12, 2006 Date:
External Approval :		
Transport Canada	 Mirko Zgela, DAR #310	June 12, 2006 Date:

**Annex A**

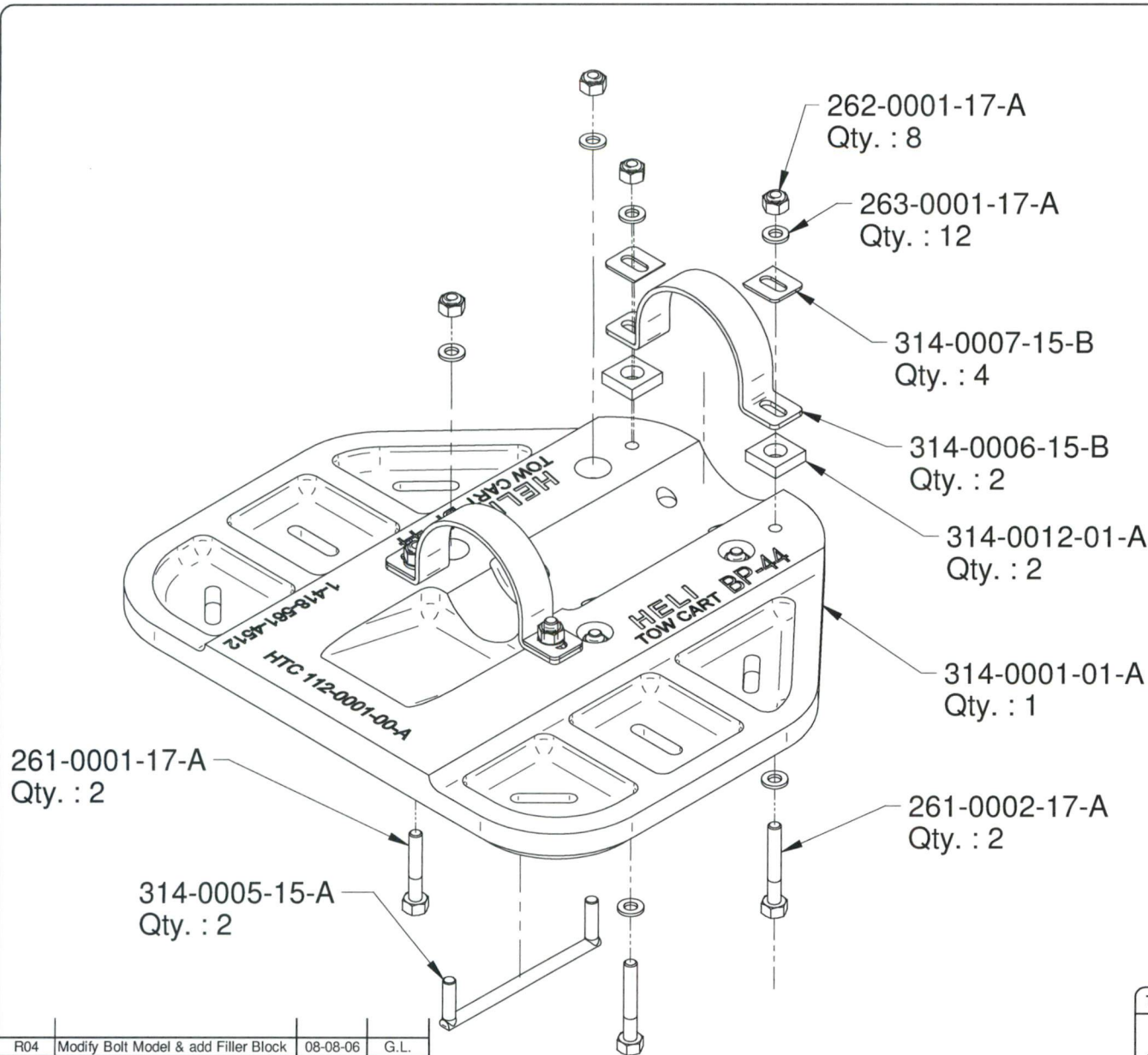
See: BearPaw Assembly, drawing no. VNR083.

**Annex B**

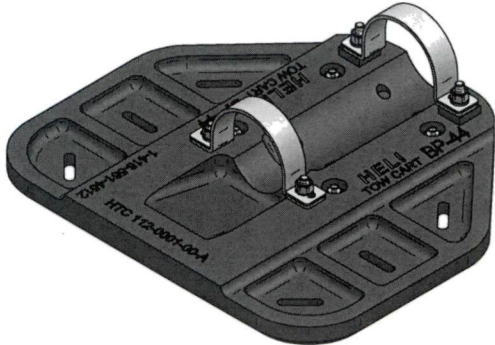
See: BearPaw Pad, drawing no. VNR088. Page 2 of 2.

**Annex A**

BearPaw Assembly, Drawing no. VNR083.  
P/N 112-0001-00-A



N°	Qty	Description	Part #
1°	1	Bearpaw - Pad	314-0001-01-A
2°	2	Bearpaw - Iceblade assembly	314-0005-15-A
3°	2	Bearpaw - U Shaped clip	314-0006-15-B
4°	4	Bearpaw - Slotted clip support	314-0007-15-B
5°	8	Nut MS20-365-428	262-0001-17-A
6°	12	Washer AN960-416	263-0001-17-A
7°	2	Bolt AN4-14A	261-0001-17-A
8°	2	Bearpaw - Filler Block	314-0012-01-A
9°	2	Bolt AN4-15A	261-0002-17-A



NOTE : Iceblade assembly can be omitted from installation (Optional)

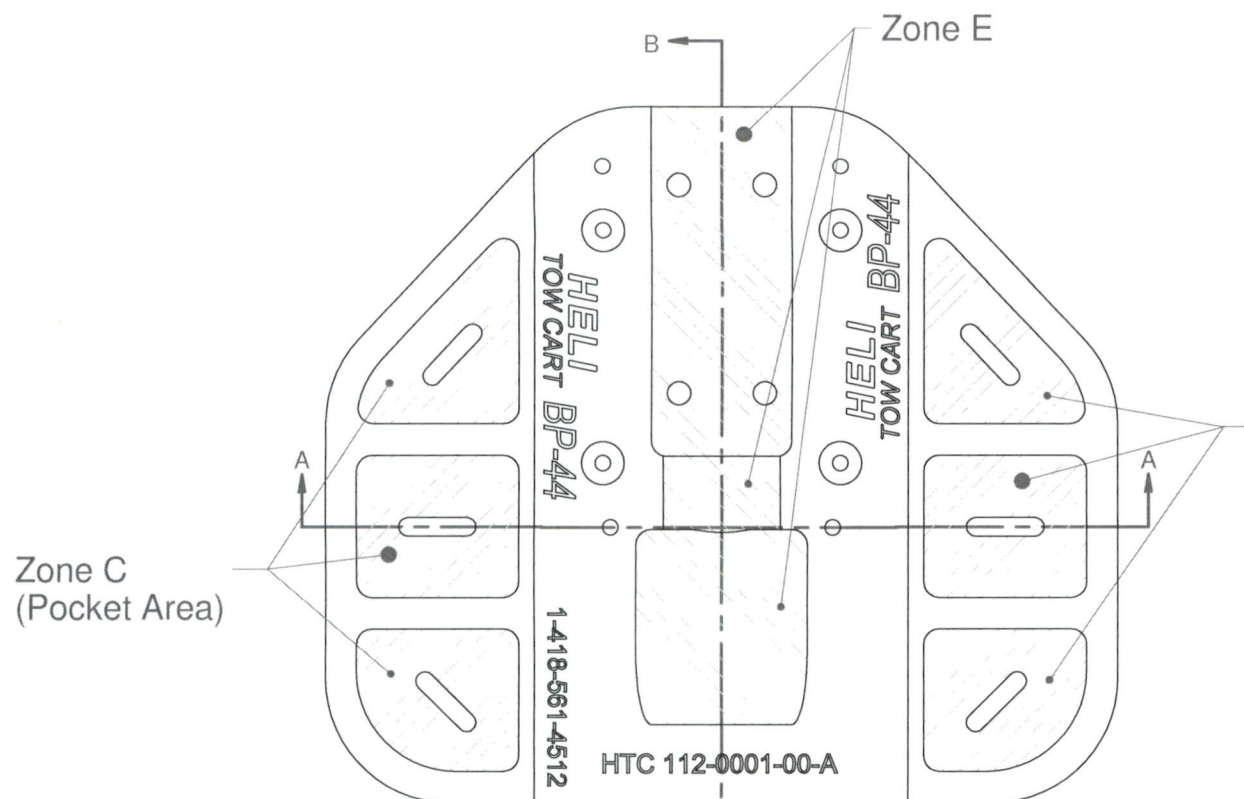
Rev.	Description	Date	By
R04	Modify Bolt Model & add Filler Block	08-08-06	G.L.
R03	Issue for production	25-04-06	G.L.

<b>TOLERANCES</b> 1/X ± 1/32" X.XX ± 0.010" X.XXX ± 0.005" ANGLE ± 1°		<b>HELI TOW CART</b> Vanair inc. 860, Marie-Victorin St-Nicolas, Lévis (Québec) Canada, G7A 3S9 Tél : (418) 561-4512 Fax : (418) 836-2291 www.helitowcart.com		THIS DOCUMENT IS PROPERTY OF VANAIR INC. WRITTEN PERMISSION FROM VANAIR INC. SHALL BE OBTAINED PRIOR TO COPYING, USING OR MODIFYING.	
<b>Titre / Title</b> Bearpaw Assembly		<b>Matériel / Material:</b>		<b>Page #:</b> 1 de 1	
Dessiné par / Drawing by: G. Lapointe		Date: (yyyy-mm-dd) 2006-04-25		Echelle / Scale: N/A	
Vérifié par / Checked by:		Date: (yyyy-mm-dd)		Numéro dessin / Drawing Number: VNR083	
Approuvé par / Approved by:		Date: (yyyy-mm-dd)		Numéro de pièce / Part Number: 112-0001-00-B	
PROJECTION		Rev#: R04		Rev#: R04	

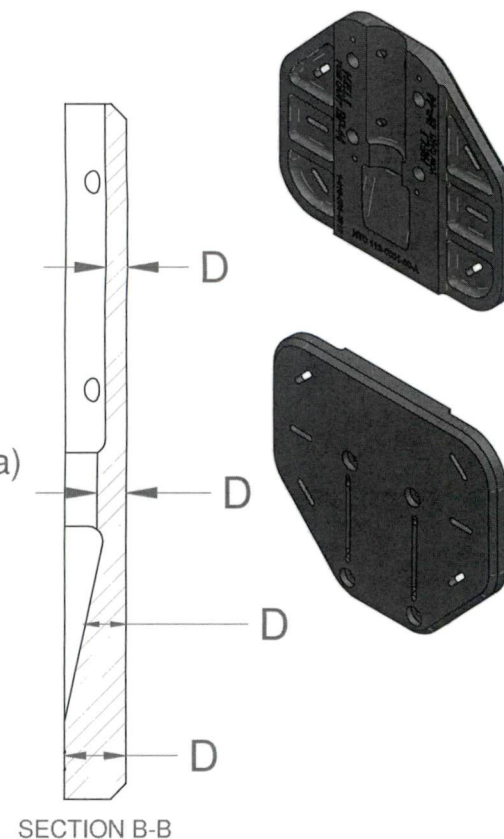


**Annex B**

BearPaw Pad, Drawing no. VNR088. Page 2 of 2.  
P/N 314-0001-01-A



Zone C  
(Pocket Area)



SECTION A-A

Rev.	Description	Date	By
R03	Issue for production	04-04-06	G.L.
R02	Révision Générale	23-03-06	G.L.
R01	Initial issue	27-02-06	G.L.

TOLERANCES
1/X ± 1/32"
X/XX ± 0.010"
X/XXX ±
ANGLE ± 1°
PROJECTION

HELI TOW CART		Vanair inc.		THIS DOCUMENT IS PROPERTY OF VANAIR INC. WRITTEN PERMISSION FROM VANAIR INC. SHALL BE OBTAINED PRIOR TO COPYING, USING OR MODIFYING.	
860, Marie-Victorin St-Nicolas, Lévis (Québec) Canada, G7A 3S9 Tel : (418) 561-4512 Fax : (418) 836-2291 www.helitowcart.com		Date: (yyyy-mm-dd) 2006-04-24		Page #: 2 de 2	
Dessiné par / Drawing by: G. Lapointe		Format: B		Echelle / Scale: 1 : 2	
Vérifié par / Checked by:		Date: (yyyy-mm-dd)		Révisé: R03	
Approuvé par / Approved by:		Date: (yyyy-mm-dd)		Numéro de pièce / Part Number: 314-0001-01-A	
Numéro dessin / Drawing Number: VNR088		Numéro de pièce / Part Number: 314-0001-01-A		Révisé: R03	

DRAFT 1



314-0011-00-A  
**BearPaw Model BP44**  
**Installation Instructions - R44**

**TABLE OF CONTENTS:**

<b>INTRODUCTION</b>	<b>p.2</b>
Scope	p.2
General	p.2
Helicopter Effectivity	p.2
Installer Responsibilities	p.2
 <b>INSTALLATION</b>	 <b>p.3</b>
BearPaw Installation	p.3
BearPaw Removal	p.4
Weight & Balance	p.4
Parts List	p.4
 <b>INSPECTION</b>	 <b>p.5</b>
Life Limited Items	p.5
Pre-Flight	p.5
Periodic Inspection Schedule	p.5
100 Hour or Yearly Inspection Details	p.5
Overhaul Requirements	p.5
 <b>REVISIONS &amp; APPROVAL</b>	 <b>p.6</b>
Annex A (BearPaw Assembly Drawing)	
Annex B (BearPaw Pad Drawing)	



## INTRODUCTION

### Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw for your Robinson R44.

### General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table (1):

**Table 1 – Helitowcart Customer Support**

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	860 Marie-Victorin St-Nicholas, Levis, Quebec, Canada, G7A 3S9	Tel:1 (418) 561-4512 Fax:1 (418) 836-2291 <a href="mailto:info@helitowcart.com">info@helitowcart.com</a>

### Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

**Table 2 – Robinson Helicopter Effectivity**

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0271 thru 9999	H11NM
R44 II	1140, 10001 and subsequent	H11NM

### Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

## INSTALLATION

### BearPaw Installation

#### Reference Documentation:

- [1] Robinson R44 - Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
- [2] Annex A – BearPaw Assembly Drawing (VNR083)

#### Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

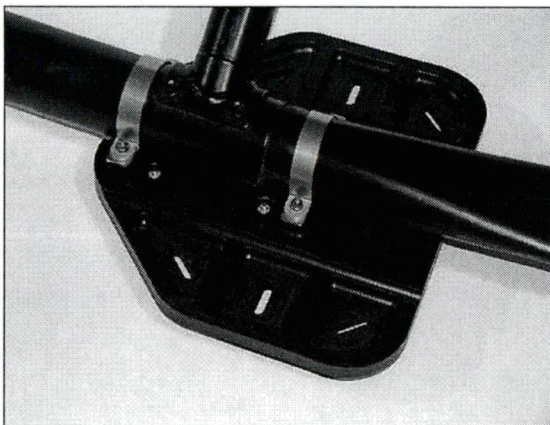
#### Step 2: BearPaw Preparation

- Install the ice blades (Qty:2) under the BearPaw pad as per drawing (VNR083) Ref [2];
- Insert washer (Washer P/N 263-0001-17) through threaded part of the ice blade and secure with nut (P/N 262-0001-17);
- Position the BearPaw under skid at the aft intersection with the cross tube as per figure 1 with narrow edge pointing forward.

#### Step 3: BearPaw Set Up

- Insert washers (P/N 263-0001-17) through all four bolts: 2x(P/N261-0001-17) & 2x(261-0002-17);
- Insert bolt(P/N261-0001-17) and washer (Washer P/N 263-0001-17) through BearPaw pad as per drawing (VNR083) Ref [2]
- Insert filler blocks (P/N314-0012-01)
- Insert both U-shaped clips (P/N 314-0006-15) through bolts: 2x(P/N261-0001-17) & 2x(261-0002-17);
- Insert slotted clip supports (P/N 314-0007-15) through all four bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Max. torque on nuts 60 in.-lb;
- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

**Figure 1 - Installed BearPaw Model BP44**





### BearPaw Removal

#### Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

#### Step 2: BearPaw Removal

- Remove nuts (P/N 262-0001-17), slotted clip support (P/N 314-0007-15) on U-shaped clips (P/N 314-0006-15),
- Remove U-shaped clips (P/N 314-0006-15), filler blocks (P/N314-0012-01) and remove BearPaw pad (P/N 314-0001-01);
- Inspect skid tubes to confirm serviceability
- Re-install aft wearshoe with screws as per reference [1];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

### Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

**Table 3 – Weight & Balance Data**

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	5.9 Lb 2.7 Kg	0.0in. (0.0mm)	0.0lb-kG (0.0mm-kG)	128.5 in 3.26 m	758.1 in-lb 8.8 m-kG

### Parts Lists

The Helitowcart BearPaw detailed parts list is as follow:

**Table 4 – Parts List**

Description	Qty	Part No.	Drawing no./name
Helitowcart BearPaw Model BP44	1	112-0001-00	VNR083 / BearPaw Assembly
BearPaw pad	1	314-0001-01	VNR088 / BearPaw - Pad
U Shaped Clips	2	314-0006-15	VNR087 / BearPaw - U Shaped Clips
Slotted Clip Support	4	314-0007-15	VNR089 / BearPaw - Slotted Clip Support
Filler blocks	2	314-0012-01	VNR099 / BearPaw – Filler block
Bolts	2	261-0001-17	Bolt- AN4-14
Bolts	2	261-0002-17	Bolt- AN4-15
Nuts	8	262-0001-17	Nut- MS20-365-428
Washers	12	263-0001-17	Washer – AN960-416



## INSPECTION

### Life Limited Items

Three are no life limited items for the Helitowcart BearPaw.

### Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured,
- Check that BearPaws are free from visible damage,
- If damage is found, verify allowable damage according to:  
 Table 5 – Tolerances for cracks & wear, &  
 Annex B – BearPaw Allowable Damage Drawing (VNR088 page 2 of 2)

### Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 100 flying hours.
- The Helitowcart BearPaw can be inspected concurrently with the R44 landing gear inspection.
- Recommended tolerance for performance of inspection is +/- 10% of the 100 hours period.

### 100 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal",
- Inspect all parts for damage & wear. See table & figure below for allowable damage,
- Replace all damaged parts,
- Replace parts worn beyond the tolerances indicated below.
- See Tolerances for cracks & wear:  
 Table 5 – Tolerances for cracks & wear, &  
 Annex B – BearPaw Allowable Damage Drawing (VNR088 page 2 of 2)

**Table 5 – Tolerances for Cracks & Wear**

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,375	0,075	<u>Stiffeners</u> : NO cracks in stiffeners.  <u>Pockets</u> : Cracks are acceptable in the Helitowcart BearPaw pocket areas to a maximum length of 0,5" provided they are 0,25" away from the stiffener radius change. Stop drill cracks with a 0,125" hole.
D	0,350	0,050	
E	N/A	N/A	No cracks allowed in zone E

### Overhaul Requirements

- Not applicable for the designated application of this device.




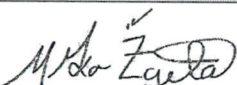
314-0011-00-A  
BearPaw Model BP44  
Installation Instructions - R44

## REVISIONS & APPROVAL

### Revisions

Date	Rev	Nature
June 12, 2006	A	Initial issue

### Approval

Internal Approval :		
Helitowcart inc.	 Lucien Barbeau, President	June 12, 2006 Date:
External Approval :		
Transport Canada	 Mirko Zgela, DARJ#310	June 12, 2006 Date:

### Annex A

See: BearPaw Assembly, drawing no. VNR083.

### Annex B

See: BearPaw Pad, drawing no. VNR088. Page 2 of 2.



314-0011-00-A  
**BearPaw Model BP44**  
**Installation Instructions - R44**

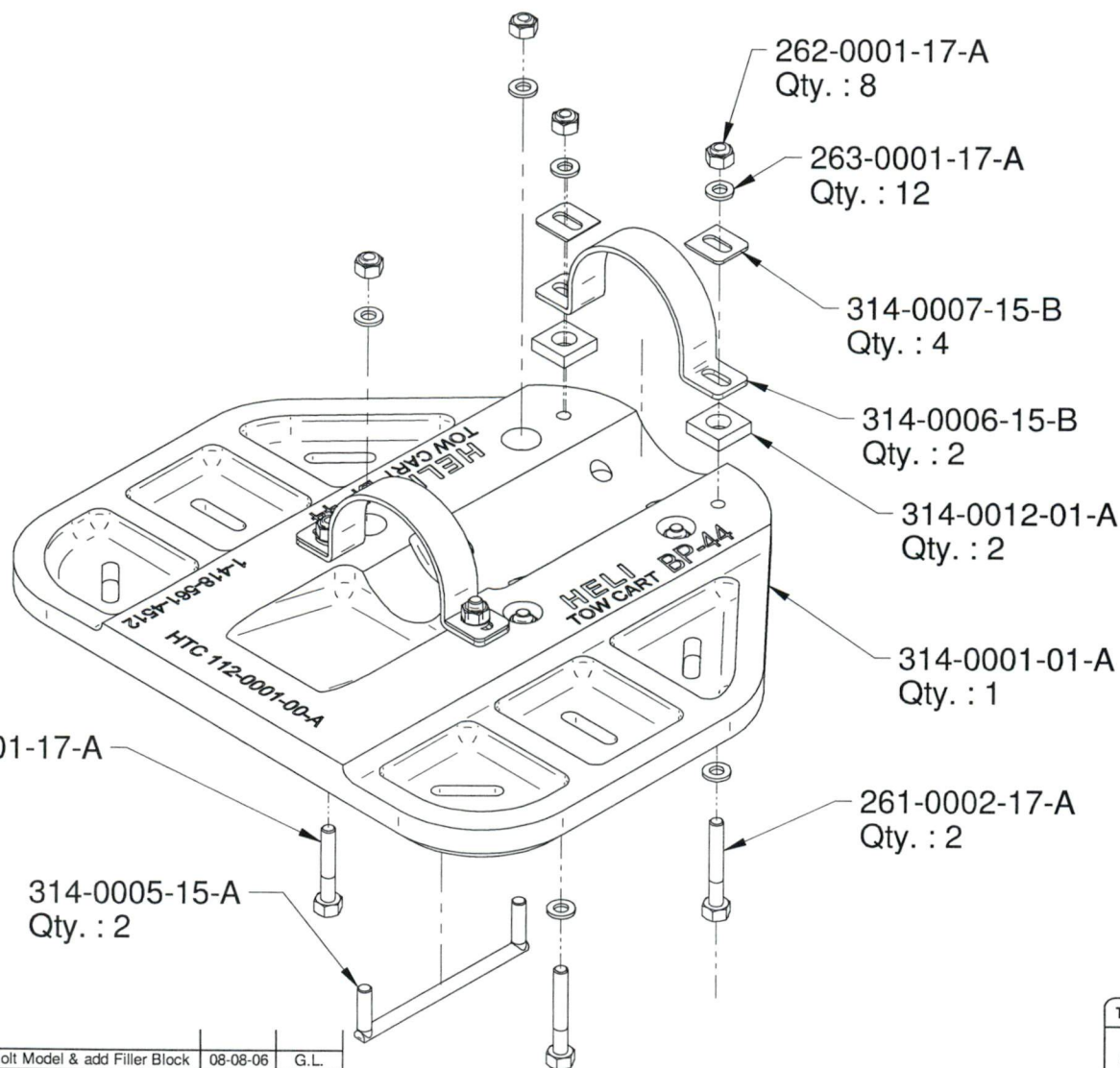
---

**Annex A**

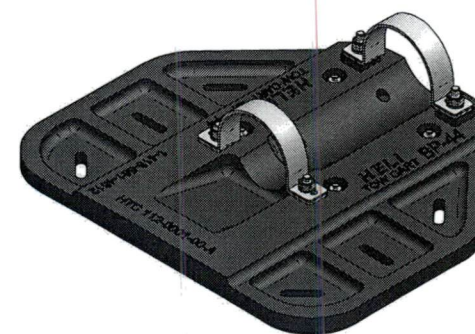
BearPaw Assembly, Drawing no. VNR083.  
P/N 112-0001-00-A

---





N°	Qty	Description	Part #
1*	1	Bearpaw - Pad	314-0001-01-A
2*	2	Bearpaw - Iceblade assembly	314-0005-15-A
3*	2	Bearpaw - U Shaped clip	314-0006-15-B
4*	4	Bearpaw - Slotted clip support	314-0007-15-B
5*	8	Nut MS20-365-428	262-0001-17-A
6*	12	Washer AN960-416	263-0001-17-A
7*	2	Bolt AN4-14A	261-0001-17-A
8*	2	Bearpaw - Filler Block	314-0012-01-A
9*	2	Bolt AN4-15A	261-0002-17-A



NOTE : Iceblade assembly can be omitted from installation (Optional)

Rev.	Description	Date	By
R04	Modify Bolt Model & add Filler Block	08-08-06	G.L.
R03	Issue for production	25-04-06	G.L.

TOLERANCES		Title / Titre		Material / Matériau	
1/16" ± 1/32"		Bearpaw Assembly			
.001" ± 0.010"		Dessiné par / Drawing by	Date (yyyy-mm-dd)	Format	Echelle / Scale
.0005" ± 0.005"		G. Lapointe	2006-04-25	B	N/A
ANGLE ± 1°		Vérifié par / Checked by	Date (yyyy-mm-dd)	Numéro dessin / Drawing Number	Page #
				VNR083	1 de 1
		Approuvé par / Approved by	Date (yyyy-mm-dd)	Numéro de pièce / Part Number	Rev #
				112-0001-00-B	R04

Vanair Inc.  
860, Marie-Victorin  
St-Nicolas, Lévis (Québec)  
Canada, G7A 3S9  
Tél. : (418) 561-4512  
Fax : (418) 836-2291  
www.helitowcart.ca

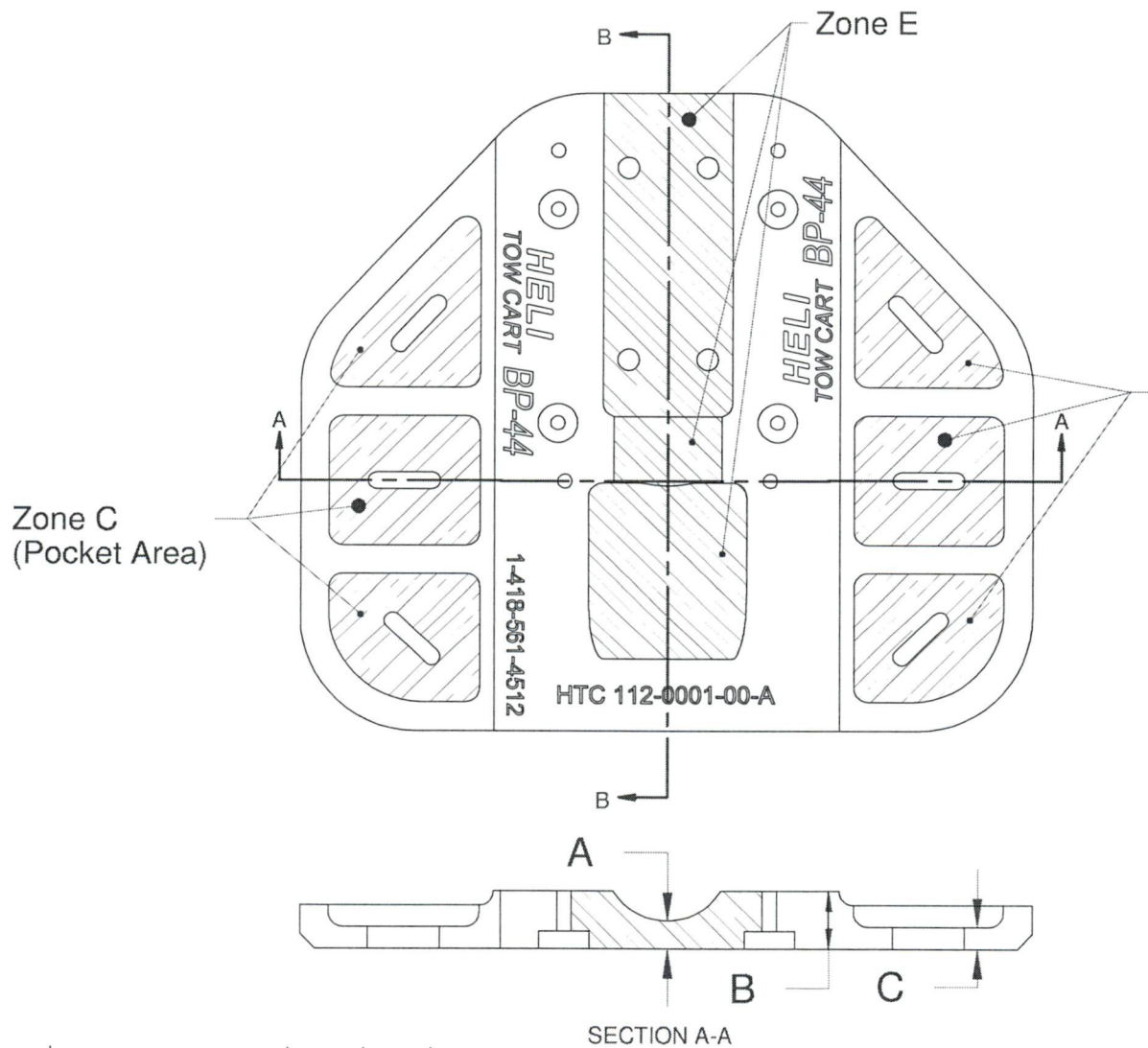
THIS DOCUMENT IS  
PROPERTY OF VANAIR  
INC. WRITTEN  
PERMISSION FROM  
VANAIR INC. SHALL BE  
OBTAINED PRIOR TO  
COPYING, USING OR  
MODIFYING.



314-0011-00-A  
BearPaw Model BP44  
Installation Instructions - R44

#### **Annex B**

BearPaw Pad, Drawing no. VNR088. Page 2 of 2.  
P/N 314-0001-01-A



Rev.	Description	Date	By
R03	Issue for production	04-04-06	G.L.
R02	Révision Générale	23-03-06	G.L.
R01	Initial issue	27-02-06	G.L.

#### TOLERANCES

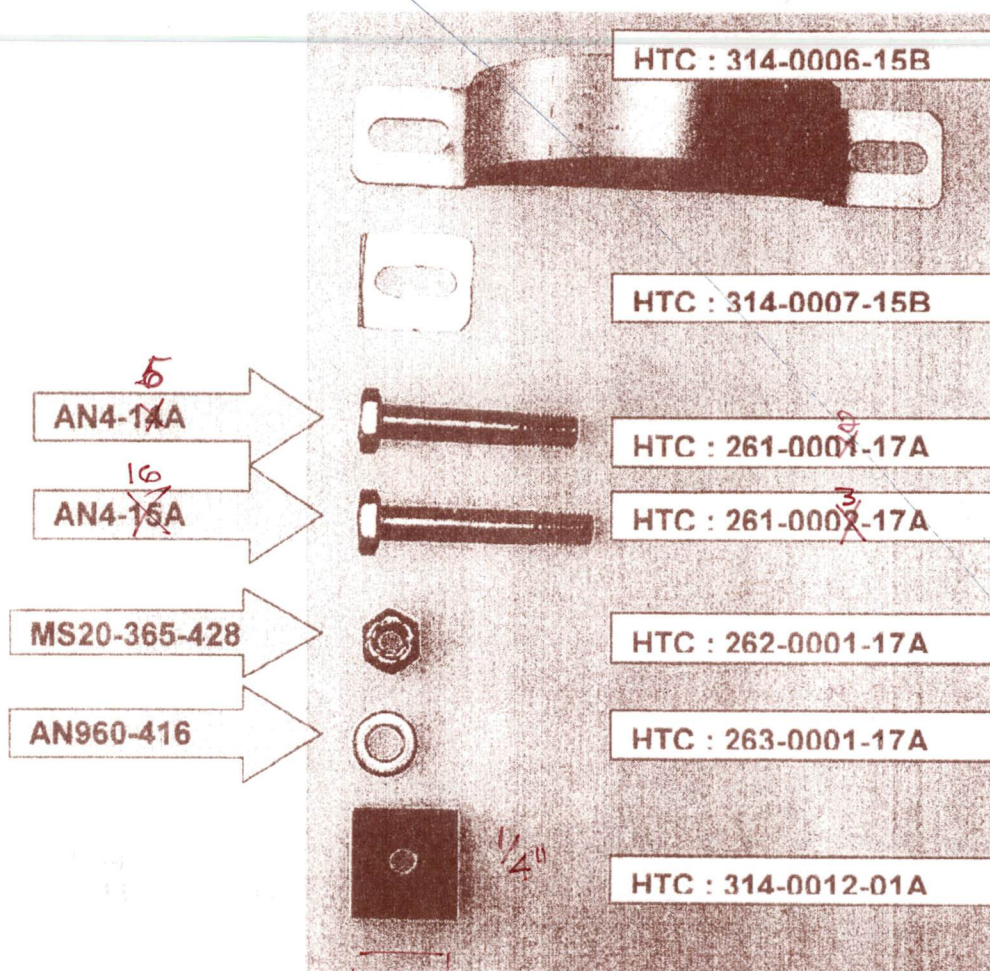
1/16" ± 1/32"  
X.XXX ± 0.010"  
ANGLE ± 1°

PROJECTION

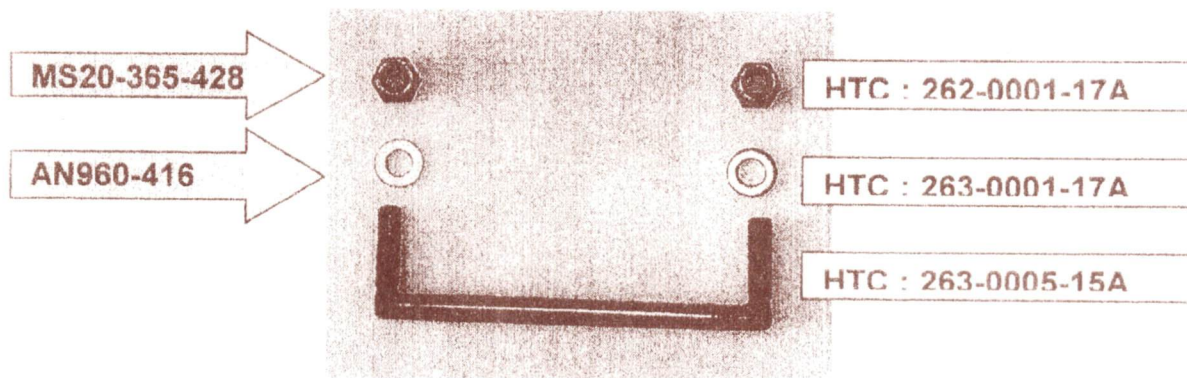
		<b>Vanair Inc.</b> 860, Marie-Victorien St-Nicolas, Lévis (Québec) Canada, G7A 5S9 Tél. : (418) 561-4512 Fax : (418) 836-2291 <a href="http://www.heliotowcart.com">www.heliotowcart.com</a>		THIS DOCUMENT IS PROPERTY OF VANAIR INC. WRITTEN PERMISSION FROM VANAIR INC. SHALL BE OBTAINED PRIOR TO COPYING, USING OR MODIFYING.	
<b>Title / Titre</b> Bearpaw - Pad		<b>Material / Matériau</b> See Note		<b>Page #</b> 2 de 2	
<b>Dessiné par / Drawing by</b> G. Lapointe		<b>Date (yyyy-mm-dd)</b> 2006-04-24		<b>Format</b> B	
<b>Vérifié par / Checked by</b>		<b>Date (yyyy-mm-dd)</b>		<b>Numéro dessin / Drawing Number</b> VNR088	
<b>Approuvé par / Approved by</b>		<b>Date (yyyy-mm-dd)</b>		<b>Numéro de pièce / Part Number</b> 314-0001-01-A	
<b>Rev #</b> R03		<b>Rev #</b>			



**BearPaw Hardware:**



**IceBlade Hardware:**





## A- REQUEST

ECR : —	ECO : 3
---------	---------

Nature of proposed change :	PRODUCT REFINEMENT 1) ADD HEAT SHINK TO CLIP 2) ADD 3/32" FILTER BLOCK AT FRONT + 1/8" FILTER BLOCK AT REAR 3) MODIFY RECOMMENDED ROUTS : FROM 14A TO 15A (REAR) + 16A (FRONT)
Reason :	Product Refinement for EXISTING installation
Submitted By :	LUCIEN BARBEAU
Date :	AUG 30, 2006

## B- IMPACT ANALYSIS

Product Manager	L. BARBEAU	Signature : /date :
Operation Manager	N. BARBEAU	Signature : /date : 2006.09.05 • IMPACT ON DRAWING TO MODIFY VS ASSY / TO CREATE VS FILTER VALUES • INSTRUCTION VS HEAT SHINK SPECS & INSTALL. METHOD • ROUT INVENTORY : NECD ANT-16A. NO MORE NEED FOR 14A
Quality System Manager	N. BARBEAU	Signature : /date : 2006.09.05 • NEED TO UPDATE PROCEDURES & DOCUMENTS • NO ISSUES
Regulatory affairs Manager	N. BARBEAU	Signature : /date : 2006.09.06 • NEED TO PROCESS CHANGE VIA MILKO 206A. • NO SAFETY ISSUES
Supplier A	N/A	Signature : /date :
Supplier B	N/A	Signature : /date :
Other	N/A	Signature : /date :

Helitowcart - DESIGN CHANGE REQUEST-ORDER (ECR/ECO)	F20-01	Page 2 of 3
Reviewed & approved by: /		2006 09 06

### C- DECISION

Risk analysis	<ul style="list-style-type: none"> <li>• NO IMPACT ON PRODUCT RISK.</li> <li>• HEAT SHRINK ↓ SCRATCHING RISKS : GOOD VS RISK</li> <li>• ↑ FILTER BLOCKS ↓ DIFFICULTY INSTALLING : GOOD VS RISK</li> </ul> <p>Signature : <u>S. Balleau</u> /date : <u>2006.09.06</u></p>
---------------	--

Decision	<p>• PERFORM CHANGE ECO #3</p> <p>Signature : <u>S. Balleau</u> /date : <u>2006.09.06</u></p>
----------	---

### D- ACTION PLAN

Action	Resp	Due date :	Verified by :
1) UPDATE DWG # VNROB3 (Assy)	AMEC	SEPT 7.	NB, SEPT 7, 2006
2) CREATE 2 NEW DWGS FOR ADD. FILTER BLOCKS	AMEC	SEPT 7.	NB, SEPT 7, 2006
3) UPDATE P2D DWG TO TAKE OF VERSION NO. B	AMEC	SEPT 7.	NB, SEPT 7, 2006
3) UPDATE INSTAL. INSTR. 314-0011-00- <del>X</del>	NB	SEPT 7.	NB, SEPT 10, 2006
4) OBTAIN APP'L FROM MIRO <sup>(A)</sup> // SEND TO TC. <sup>(B)</sup>	NB	SEPT 8.	NB, SEPT 9, 2006
5) UPDATE INVENTORY : <sup>RETURN AN4-14A</sup> BUY AN4-16A	LB	SEPT 9.	
6) UPDATE INTERNAL TECH DOC. & Q MNGT DOC	NB	SEPT 7.	NB, SEPT 6, 2006
<ul style="list-style-type: none"> <li>• 314.0010.00 <del>X</del> COR</li> <li>• 314.0013.00 <del>X</del> B</li> <li>• LABELS FOR BAGS</li> <li>• CREATE DOC. FOR SHRINK</li> </ul>			
7) PRINT NEW DOC. (10 SETS)	NB	SEPT 12	
8) SEND 1 COPY TO HELI. CAN. (FOR AIRCRAFT)	NB	SEPT 12	
9) UPDATE DOC FOR MAKINEN IN FINLAND	NB	SEPT 12	
Effective date : SEPT 10, 2006	Effective lot no : LNF-060905-01		



Helitowcart - <b>DESIGN CHANGE REQUEST-ORDER (ECR/ECO)</b>	F20-01	Page 3 of 3
Reviewed & approved by: _____ / _____		2006 09 06

### E- VERIFICATION

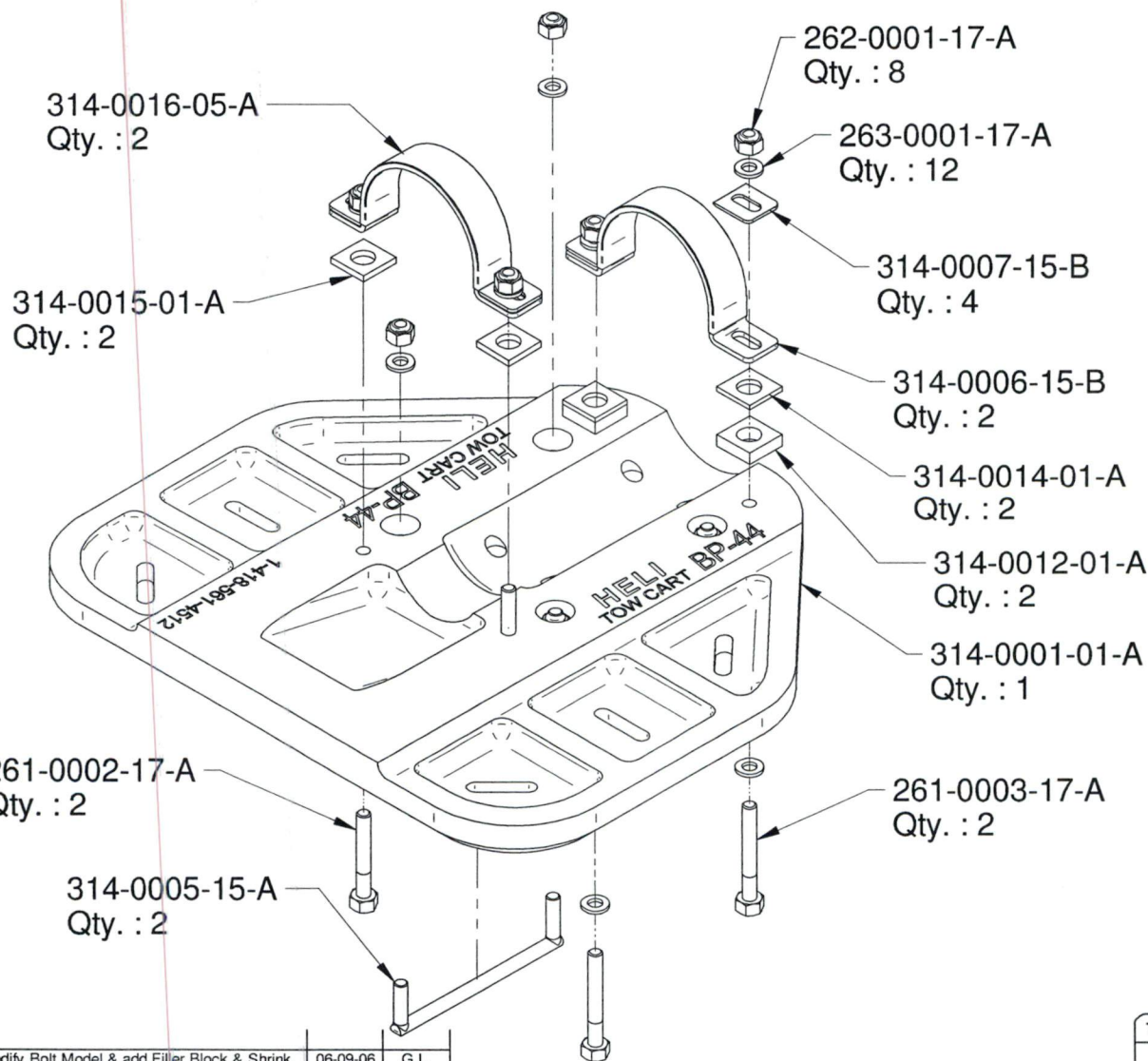
Verified Elements :	By/ date :

### F- VALIDATION

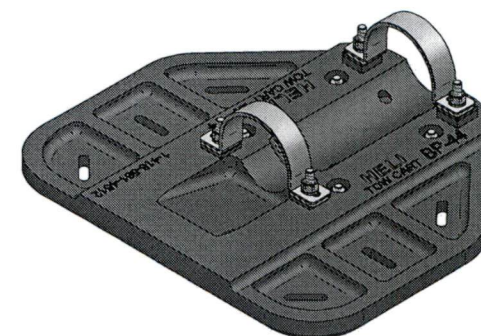
Validated Elements :	By/ date :

### G- CLOSURE

I confirm that the designated change has been performed successfully :	
Signature : _____	/date : _____



N°	Qty	Description	Part #
1°	1	Bearpaw - Pad	314-0001-01-A
2°	2	Bearpaw - Iceblade assembly	314-0005-15-A
3°	2	Bearpaw - U Shaped clip	314-0006-15-B
4°	4	Bearpaw - Slotted clip support	314-0007-15-B
5°	8	Nut MS20-365-428	262-0001-17-A
6°	12	Washer AN960-416	263-0001-17-A
7°	2	Bolt AN4-15A	261-0002-17-A
8°	2	Bearpaw - Filler Block 1/4"	314-0012-01-A
9°	2	Bolt AN4-16A	261-0003-17-A
10°	2	Bearpaw - Shrink 1"x5"	314-0016-05-A
11°	2	Bearpaw - Filler Block 1/8"	314-0015-01-A
12°	2	Bearpaw - Filler Block 3/32"	314-0014-01-A



NOTE : Iceblade assembly can be omitted from installation (Optional)

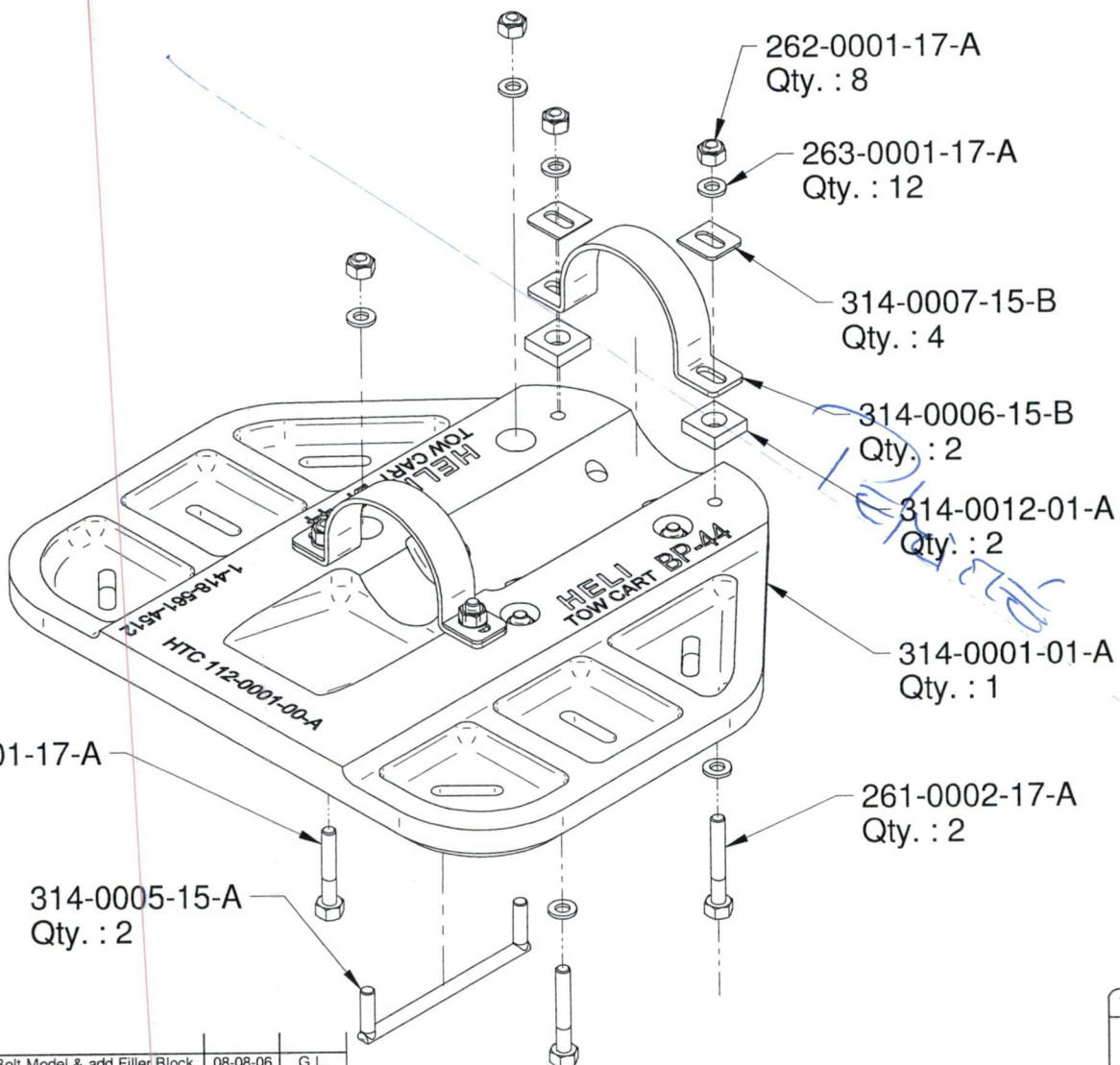
Rev.	Description	Date	By
R05	Modify Bolt Model & add Filler Block & Shrink	06-09-06	G.L.
R04	Modify Bolt Model & add Filler Block	08-08-06	G.L.
R03	Issue for production	25-04-06	G.L.

TOLERANCES		Title / Titre		Materials / Matériau	
1/X ± 1/32"		Bearing Assembly			
X.XX ± 0.010"		Drawn by / Dessiné par	G. Lapointe	Date / Date	2006-04-25
X.XXX ± 0.005"		Check by / Vérifié par		Format	B
ANGLE ± 1°		Approved by / Approuvé par		Echelle / Scale	N/A
				Page	1 de 1
				Number of pieces / Part Number	VNR083
				Rev #	R05
				112-0001-00-C	

**HELI**  
TOW CART

Vanair Inc.  
860, Marie-Victorin  
St-Nicolas, Lévis (Québec)  
Canada, G7A 3S9  
Tél : (418) 561-4512  
Fax : (418) 539-2291  
www.heliparts.com

THIS DOCUMENT IS  
PROPERTY OF VANAIR  
INC. WRITTEN  
PERMISSION FROM  
VANAIR INC. SHALL BE  
OBTAINED PRIOR TO  
COPYING, USING OR  
MODIFYING.



N°	Qty	Description	Part #
1°	1	Bearpaw - Pad	314-0001-01-A
2°	2	Bearpaw - Iceblade assembly	314-0005-15-A
3°	2	Bearpaw - U Shaped clip	314-0006-15-B
4°	4	Bearpaw - Slotted clip support	314-0007-15-B
5°	8	Nut MS20-365-428	262-0001-17-A
6°	12	Washer AN960-416	263-0001-17-A
7°	2	Bolt AN4-14A	261-0001-17-A
8°	2	Bearpaw - Filler Block	314-0012-01-A
9°	2	Bolt AN4-15A	261-0002-17-A

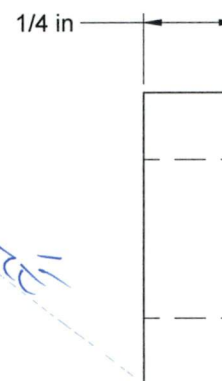
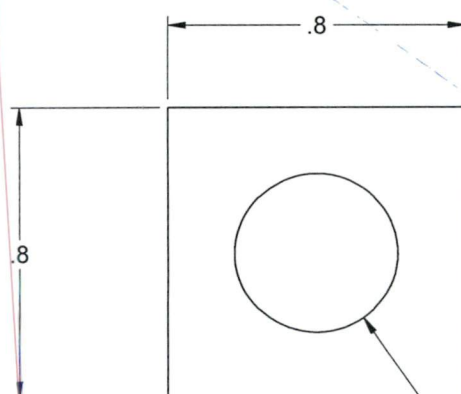
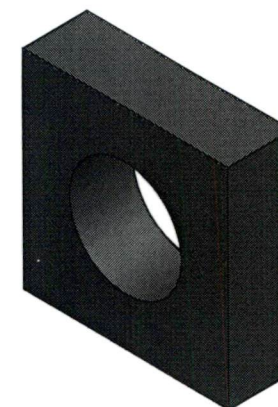


NOTE : Iceblade assembly can be omitted from installation (Optional)

R04	Modify Bolt Model & add Filler Block	08-08-06	G.L.
R03	Issue for production	25-04-06	G.L.
Rev.	Description	Date	By

<b>TOLERANCES</b> 1/X ± 1/32" X.XX ± 0.015" X.XXX ± 0.005" ANGLE ± 1°		<b>Vanair inc.</b> 860, Marie-Victorin St-Nicolas, Lévis (Québec) Canada, G7A 3S9 Tél. : (418) 561-4512 Fax : (418) 836-2291 www.helilowcart.com		THIS DOCUMENT IS PROPERTY OF VANAIR INC. WRITTEN PERMISSION FROM VANAIR INC. SHALL BE OBTAINED PRIOR TO COPYING, USING OR MODIFYING.	
		<b>HELI TOW CART</b>			
<b>Title / Titre</b> Dessiné par / Drawing by G. Lapointe Vérifié par / Checked by Approuvé par / Approved by PROJECTION		<b>Date</b> 2006-04-25 06-08-06		<b>Format</b> B Echelle / Scale N/A Page # 1 de 1	
Numéro dessin / Drawing Number VNR083		Numéro de pièce / Part Number 112-0001-00-B		Rev # R04	





*PERITE*

Ø 7/16 in

Rev.	Description	Date	By
R01	Initial issue	08-08-06	G.L.

TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ± 0.005"
ANGLE ± 1°
PROJECTION:

		<b>Vanair inc.</b> 860, Marie-Victorin St-Nicolas, Lévis (Québec) Canada, G7A 3S9 Tél. : (418) 561-4512 Fax : (418) 836-2291 <a href="http://www.helitowcart.com">www.helitowcart.com</a>		THIS DOCUMENT IS PROPERTY OF VANAIR INC. WRITTEN PERMISSION FROM VANAIR INC. SHALL BE OBTAINED PRIOR TO COPYING, USING OR MODIFYING.	
		Titre / Title: <b>Filler Block</b> <i>1/4</i>			
Dessiné par / Drawing by: <b>G. Lapointe</b>		Date: (yyyy-mm-dd) <b>2006-08-08</b>	Format: <b>A</b>	Echelle / Scale: <b>1:1</b>	Page #: <b>1 de 1</b>
Vérifié par / Checked by:		Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: <b>VNR099</b>		Rev #: <b>R01</b>
Approuvé par / Approved by:		Date: (yyyy-mm-dd)	Numéro de pièce / Part Number: <b>314-0012-01-A</b>		Rev #:

Javi 7:33  
6.9.06.

Δing. ECO #3

6 SEPT 2006

2 PAGES

À: GUILLAUME LAPOINTE, ATEC, 878-2536

DE: NATALIE BARBEAU, VANAIL

OBJET: DESSIN MODIFIÉ À NOUVEAU

ALLO GUILLAUME,

SVP UTILISER LE DESSIN CI-JOINT.

AVONS FAIT UN AUTRE CHANGEMENT:

~~ARRIÈRE~~  
~~BOUTS ANA-14A~~

↓

ANA-15A

~~AVANT~~  
~~ANA-15A~~

↓

ANA-16A

SVP M'APPELER DÈS QUE POSSIBLE.

831-8419. S'ASSURER QUE BESOINS DE  
MODIFS SOIENT CLAIRS POUR TOI.  
MERCI

Nathalie





## If the shoe fits...

We all know the comfort of having a great pair of shoes...  
Why should your helicopter be any different?  
DART offers a complete line up of landing gear for your fleet.  
Making your chopper and DART a great fit.

Call to see how your helicopter can adapt and excel in your environment.

1-613-632-3336 or 1-800-556-4166 / Canadian Sales ask for Ext. 112

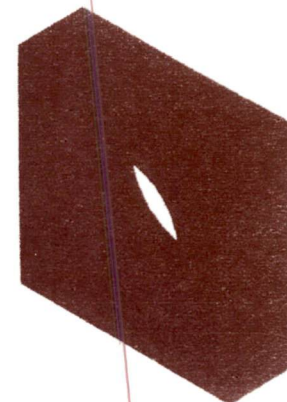
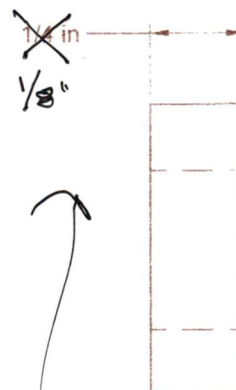
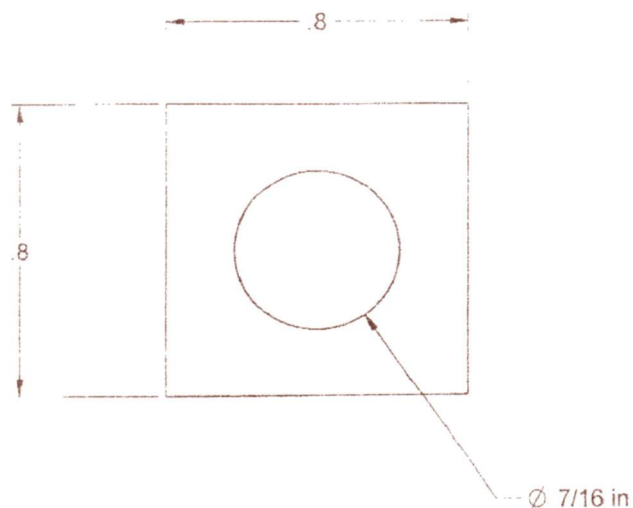
1-246-420-7282 / International Sales ask for Ext. 113

[www.DartHelicopterServices.com](http://www.DartHelicopterServices.com)





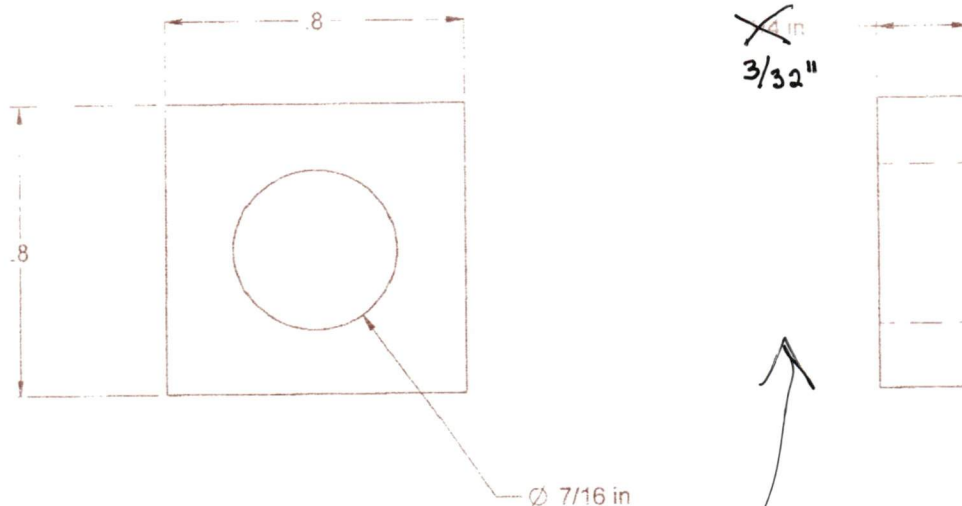
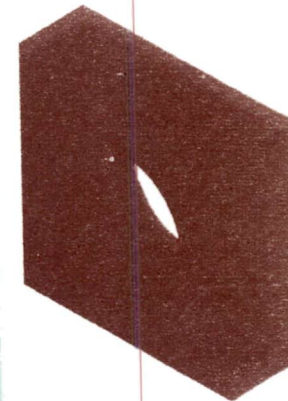




Rev.	Description	Date	By
R01	Initial issue	08-08-06	G.L.

<b>TOLERANCES</b>		Titre / Title: <b>Filler Block 1/8" (3.17 mm)</b>		Matériau / Material: <b>UHMW</b>	
1/8" ± 1/32"	1/16" ± 1/64"	1/32" ± 1/64"	1/64" ± 1/128"	1/128" ± 1/256"	1/256" ± 1/512"
Description / Drawing by: <b>G. Lapointe</b>		Date (yyyy-mm-dd): <b>2006-08-08</b>	Format: <b>A</b>	Echelle / Scale: <b>1 : 1</b>	Page #: <b>1 de 1</b>
Vérifié par / Checked by:		Date (yyyy-mm-dd):	Numéro dessin / Drawing Number: <b>VNR099 ?</b>		Rev #: <b>R01</b>
Approuvé par / Approved by:		Date (yyyy-mm-dd):	Numéro de pièce / Part Number: <b>314-0015-01-A</b>		Rev #:

**NOUVEAU**



R01	Initial issue	08-08-06	G.L
Rev	Description	Date	By

TOLERANCES
1/X ± 1/32"
X XX ± 0.010"
X XXX ± 0.005"
ANGLE ± °
SECTION

		<b>Vanair inc.</b> 960, Marie-Victorin St-Nicolas, Lévis (Québec) Canada, G7A 3S9 Tél: (418) 561-4312 Fax: (418) 836-2291 <a href="http://www.helitowcart.com">www.helitowcart.com</a>		THIS DOCUMENT IS PROPERTY OF VANAIR INC. WRITTEN PERMISSION FROM VANAIR INC. SHALL BE OBTAINED PRIOR TO COPYING, USING OR MODIFYING	
		Titre / Title <b>Rebar-Filler Block 3/32" (2.38 mm)</b>		Matière / Material <b>UHMW</b>	
Dessiné par / Drawing by <b>G. Lapointe</b>		Date (yyyy-mm-dd) <b>2006-08-08</b>		Echelle / Scale <b>1:1</b>	
Vérifié par / Checked by		Date (yyyy-mm-dd)		Numéro dessin / Drawing Number <b>VNR000 (?)</b>	
Approuvé par / Approved by		Date (yyyy-mm-dd)		Numéro de pièce / Part Number <b>314-001A-01-A</b>	
Rev#		Rev#		Rev#	

**NOUVEAU**



1/9/2006  
14:23  
Lapointe

FAX TRANSMISSION

Date: 1er Septembre, 2006  
Pages: 4

À: **Guillaume Lapointe, AMEC, 878-2536**

De : Nathalie Barbeau, Vanair inc.

Objet: **Nouvelle mise à jour requise aux dessins de BearPaw**

Bonjour Guillaume,  
De nouvelles modifications de raffinement à notre produit.  
Svp effectuer modifications suivantes :

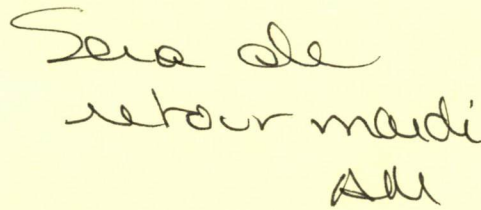
- 1) Dessin VNR083, effectuer modifs tel que annoté.
- 2) Créer deux modèles de Filler blocks additionnels : un de 3/32" et un de 1/8".

Svp pour mardi am.

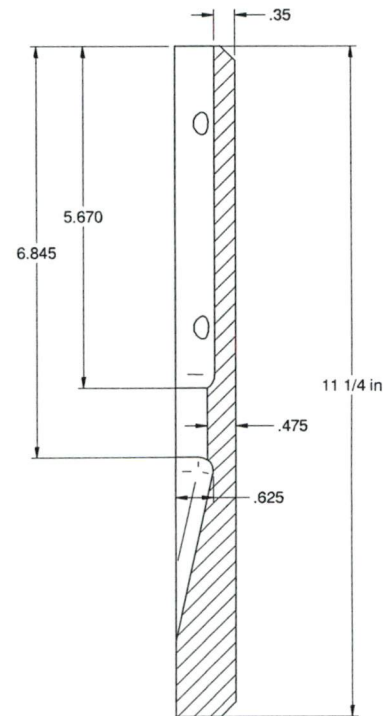
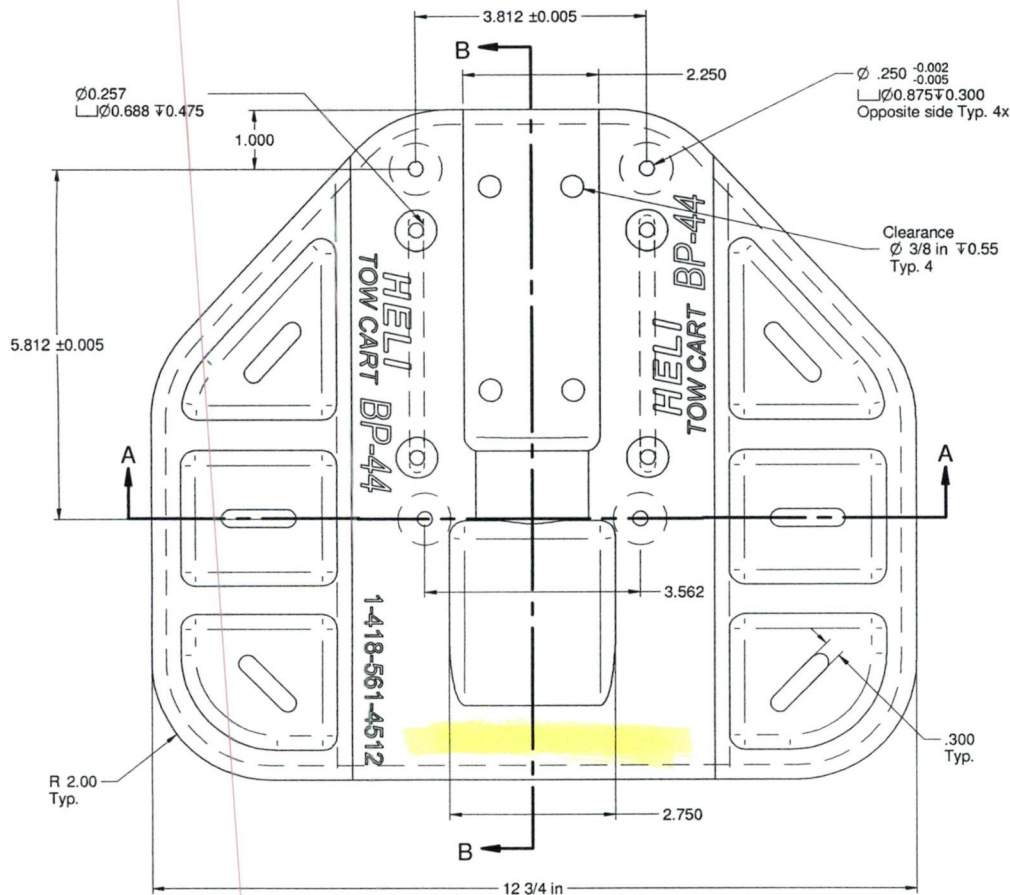
Merci infiniment!



Nathalie Barbeau  
Marketing Manager,  
Helitowcart (Vanair inc.)  
[nbarbeau@helitowcart.com](mailto:nbarbeau@helitowcart.com)  
[info@helitowcart.com](mailto:info@helitowcart.com)

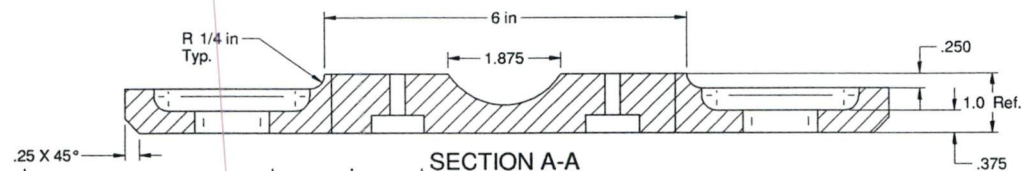


Sera de  
retour mardi  
AM



**Note :**

- Raw material specification :  
UHMW Polyethylene Sheet ( 1" x 11 1/2" x 13")  
See specs sheet
- Machined From File : VNR088.par
- Break corner 0.01 x 45 deg. Typ.
- If no indicated dimension, follow 3D file specs.



Rev.	Description	Date	By
R03	Issue for production	04-04-06	G.L.
R02	Révision Générale	23-03-06	G.L.
R01	Initial issue	27-02-06	G.L.

<b>TOLERANCES</b> 1/16" ± 1/32" .XXX ± 0.010" .XXX ± ANGLE ± 1°		Titre / Title: <b>Bearpaw - Pad</b>		Matière / Material: <b>See Note</b>	
		Dessiné par / Drawing by: <b>G. Lapointe</b>		Date (yyyy-mm-dd): <b>2006-04-24</b>	
Vérifié par / Checked by:		Date (yyyy-mm-dd):		Format: <b>B</b>	
Approuvé par / Approved by:		Date (yyyy-mm-dd):		Echelle / Scale: <b>1 : 2</b>	
PROJECTION:		Numéro dessin / Drawing Number: <b>VNR088</b>		Page: <b>1 de 2</b>	
Numéro de pièce / Part Number: <b>314-0001-01-A</b>		Révisé / Revised: <b>R03</b>		Révisé / Revised: <b>R03</b>	



Vanair Inc.  
 860, Marie-Victorin  
 St-Nicolas, Lévis (Québec)  
 Canada, G7A 3S9  
 Tél. : (418) 561-4512  
 Fax : (418) 836-2291  
 www.heliotowcart.com

THIS DOCUMENT IS  
 PROPERTY OF VANAIR  
 INC. WRITTEN  
 PERMISSION FROM  
 VANAIR INC. SHALL BE  
 OBTAINED PRIOR TO  
 COPYING, USING OR  
 MODIFYING.





PADS

faxe-  
7:39  
2006-09-06

2<sup>e</sup> fax.

6 SEPT 2006

À: GUILLAUME LAPOINTE 878.2536  
DE: NATHALIE BATHÉLÉ

PAGES: 2

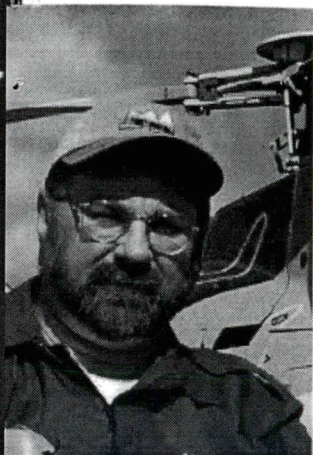
OBJET: MODIF. DESSIN - (PAS URGENT)

GUILLAUME,

- SVP EFFECTUER MODIF SUIVANTE POUR PROCHAINE BATCH DE PADS.
- SVP SOUMISSION CETTE SEMAINE POUR PADS?

Merci Beaucoup

Nathalie



## From Where I Sit **"Bucket and Ball"**

*Why learning to long line is a valuable exercise in humility.*

**by Geoff Goodyear**

Learning to long line introduces pilots to the principles of perpetual motion, not to mention humility and destruction.

At a function some time ago, I heard Dr. Sergei Sikorsky quip, "It takes infinitely more knowledge and skill to stop then land, than it does to land then stop!" Truer words were never spoken in aviation. Of course, pulling it off requires a certain degree of ability, which is why helicopter flight is a specialty skill in its own right.

Within the realm of rotary-wing aviation, we instinctively break down various types of operations into ever decreasing areas of influence, until we get to a very pointy area where it can go no further. It is a sort of *terra incognita* where the map says, "Monsters Be Here." That is where the venerable long line lives.

Those of us who dally in the world of vertical reference and have arrived at this refined point know, as with most existences, it has both good and bad elements. (I will apologize now for my subjective take, as I know many of you have differing opinions on the matter.) For the less gifted among us, long lining requires extreme concentration and offers no opportunity to relax. This is especially so when human beings are either dangling on the end of the line ("dope on a rope"), or when workers are handling a drill or some other piece of equipment on the ground. For pilots, it can be nerve-racking to have so many fingers, hands and various other appendages in such close proximity to a pendulous piece of steel controlled from above.

There are many constants in the world and one of them is that drillers have no sense of humor when pilots don't perform. The other side of that coin, however, is that when everything works—when all that steel, cable, helicopter and humanity come together and no hands or feet are left in amongst the drill set-up—there is the intense satisfaction that comes with a difficult job well done. An approving grunt from a veteran driller will keep a pilot happy for a week, or until the drill needs to be moved again... whichever comes first.

Learning how to long line is no mean feat, though. As a young pilot, I was subjected to some in-house operational training before being let loose on an unsuspecting traveling public. My introduction to the art of long lining involved a 50-pound ball of cement on the end of a 75-foot line, which I was required to deposit in an open 45-gallon drum fixed to the ground. Now I know it is not proper and it may even be physiologically damaging to have emotional feelings for inanimate objects, but folks, I felt sorry for that drum. I pummeled the poor thing with that cement ball (which I felt sorry for as well) until it was dented beyond recognition. When my body as well as my ego needed a rest, I learned to drop the ball on the ground, drag it up to the edge of the drum, and scrape it up along the side until it plopped in. Not very pretty, but I could convince others, and, most importantly, myself, that I got the ball in the bucket! Mind over matter, folks... mind over matter.

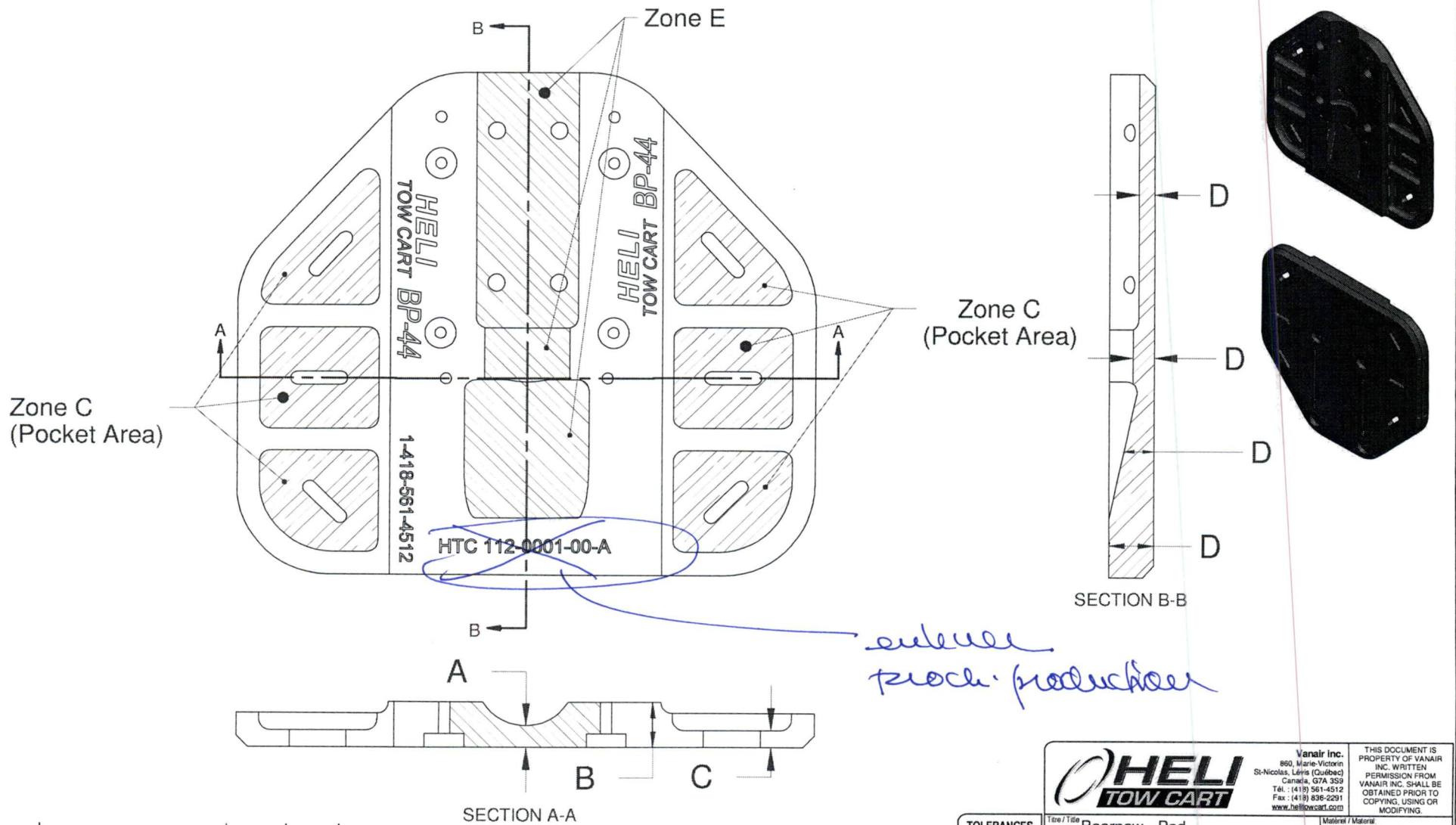
With the advent of front bubble windows, long lining has turned into a rather gracious pursuit. There was always an extra dimension of adventure in having to lean out of a doorless helicopter in February and not be able to wipe the icicles from one's nose. Of course, the absence of external torque gauges accommodated the adage that it is sometimes best not to know. In time, I learned to move my eyes independently, with the oculomotor skill of a chameleon—one eye on the Q gauge, the other on the load.

Regrettably, little or no formal long line training is done with young drivers in their formative years. It certainly costs money to practice, but there are several payoffs to such training. While my bucket and ball drills were an exercise in humility, they were also probably some of the most valuable training I received. Catching on with the long line keeps one in fighting trim and the skills acquired in the precision art of drill moves, logging and the like, serve one well in the more mundane pursuits of taking off, moving from point A to B and then landing. Moreover, a humbling training exercise does not go astray when emerging egos need a little counterbalance.

Sure, the extra concentration and potential for embarrassing results might put some pilots off, but I would suggest the professional satisfaction that comes from being able to conduct precision work, as well as the extra polish acquired in terms of flight skills, far outweighs any initial humiliation.



Att: Guillaume Lapointe / Amea



Rev.	Description	Date	By
R03	Issue for production	04-04-06	G.L.
R02	Révision Générale	23-03-06	G.L.
R01	Initial issue	27-02-06	G.L.

#### TOLERANCES

1/16" ± 1/32"
X.XX ± 0.010"
ANGLE ± 1°
PROJECTION

<b>HELI</b> TOW CART		Vanair Inc. 860, Marie-Victorin St-Nicolas, Lévis (Québec) Canada, G7A 3S9 Tél. : (418) 561-4512 Fax : (418) 836-2291 www.helitowcart.com		THIS DOCUMENT IS PROPERTY OF VANAIR INC. WRITTEN PERMISSION FROM VANAIR INC. SHALL BE OBTAINED PRIOR TO COPYING, USING OR MODIFYING.	
Titre / Title Bearpaw - Pad		Matériau / Material See Note		Echelle / Scale 1 : 2	
Dessiné par / Drawing by G. Lapointe		Date: (yyyy-mm-dd) 2006-04-24		Page # 2 de 2	
Vérifié par / Checked by		Date: (yyyy-mm-dd)		Numéro dessin / Drawing Number VNR088	
Approuvé par / Approved by		Date: (yyyy-mm-dd)		Numéro de pièce / Part Number 314-0001-01-A	
				Rev # R03	





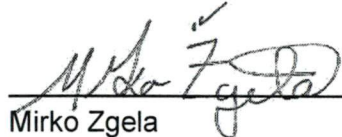
## Master Document List

Helitowcart Inc.

### Robinson R44 Helicopters Installation of BearPaw Model BP44

Report: HTC-MDL-BP-R44-1000 (Rev A)

APPROVED BY:

  
Mirko Zgela

DATE: SEPT 7, 2006

Design Approval Representative DAR #310

Revision	Revision Date	Revision of Entry	Entered by
A	2006 09 07	Drawings are added to include the provision of shims during the installation.	N. Barbeau



## 1.0 MASTER DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
AAC-CPL-BP-R44-1000	Compliance Plan - Robinson R44 Helicopters -Installation of Bear Paw Model BP44	NC	DAR 310	July 4, 2006
HTC-314-0011-00-B	BearPaw Model BP44 – Installation Instructions - R44	B	DAR 310	Sept 6, 2006
AAC-STR-BP-R44-1000	Structural Substantiation – Helitowcart Inc. BearPaw Model BP44	NC	DAR 310	July 4, 2006
AAC-FTR-C-FBLO	Simple External Modification – Applicant's Flight Test Plan/Report	NC	DAR 310	Aug 4, 2006

## 2.0 MASTER DRAWINGS

Drawings #	Title	Revision Status	Approval by	Date
VNR083	BearPaw Assembly	R05	DAR 310	Sept 6, 2006
VNR084	BearPaw – Iceblade	R01	DAR 310	Apr 24, 2006
VNR085	BearPaw – Iceblade Threaded Rod	R01	DAR 310	Apr 24, 2006
VNR086	BearPaw – Iceblade Assembly	R01	DAR 310	Apr 24, 2006
VNR088	BearPaw - Pad	R03	DAR 310	Apr 24, 2006
VNR087	BearPaw – U Shaped Clip	R04	DAR 310	July 31, 2006
VNR089	Bearpaw – Slotted Clip Support	R04	DAR 310	July 31, 2006
VNR099	Filler Block ¼"	R01	DAR 310	Aug 8, 2006
VNR103	Filler Block 3/32	R01	DAR 310	Sept 6, 2006
VNR104	Filler Block 1/8	R01	DAR 310	Sept 6, 2006

## 3.0 REFERENCE DOCUMENTS

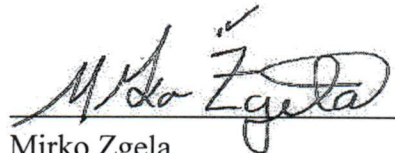
Document #	Title	Revision Status	Approval by	Date
314-0009-01-A	Ultra High Molecular Weight Polyethylene – Typical Properties	A	N/A	May 24, 2006
314-0008-01-A	Propriétés du UHMW TIVAR	A	N/A	May 24, 2006
314-0017-05-A	Heat Shrink Specifications	A	N/A	Sept 6, 2006

**Helitowcart Inc.**

**Master Document List  
Robinson R44 Helicopters  
Installation of BearPaw Model BP44**

**Report: HTC-MDL-BP-R44-1000 (Rev NC)**

APPROVED BY:



Mirko Zgela  
Design Approval Representative

DATE: AUG 8, 2006

DAR #310

Revision	Revision Date	Revision of Entry	Entered by
A	2006 09 07	Document revision update	N Barbeau



## 1.0 MASTER DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
AAC-CPL-BP-R44-1000	Compliance Plan - Robinson R44 Helicopters - Installation of Bear Paw Model BP44	NC	DAR 310	July 4, 2006
HTC-314-0011-00-A	BearPaw Model BP44 – Installation Instructions - R44	B	DAR 310	June 12, 2006
AAC-STR-BP-R44-1000	Structural Substantiation – Helitowcart Inc. BearPaw Model BP44	NC	DAR 310	July 4, 2006
AAC-FTR-C-FBLO	Simple External Modification – Applicant's Flight Test Plan/Report	NC	DAR 310	Aug 4, 2006

## 2.0 MASTER DRAWINGS

Drawings #	Title	Revision Status	Approval by	Date
VNR083	BearPaw Assembly	R05	DAR 310	Aug 8, 2006
VNR084	BearPaw – Iceblade	R01	DAR 310	Apr 24, 2006
VNR085	BearPaw – Iceblade Threaded Rod	R01	DAR 310	Apr 24, 2006
VNR086	BearPaw – Iceblade Assembly	R01	DAR 310	Apr 24, 2006
VNR088	BearPaw - Pad	R04	DAR 310	Apr 24, 2006
VNR087	BearPaw – U Shaped Clip	R04	DAR 310	July 31, 2006

VNR089	Bearpaw – Slotted Clip Support	R04	DAR 310	July 31, 2006
VNR099	Filler Block 1/4"	R01	DAR 310	Aug 8, 2006
VNRxxx	Filler Block 3/32"	R01	DAR 310	Aug 8, 2006
VNRxxxx	Filler Block 1/8"	R01	DAR 310	Aug 8, 2006

### 3.0 REFERENCE DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
314-0009-01-A	Ultra High Molecular Weight Polyethylene – Typical Properties	A	N/A	May 24, 2006
314-0008-01-A	Propriétés du UHMW TIVAR	A	N/A	May 24, 2006
314-0017-05-A	Heat Shrink specifications	A	N/A	Sept 6, 2006

Helitowcart Inc.  
860 Marie-Victorin,  
Saint-Nicolas, Levis, Quebec  
Canada, G7A 3S9

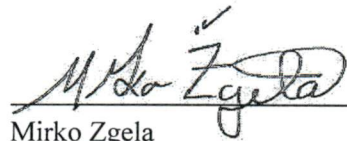


**Helitowcart Inc.**

**Master Document List**  
**Robinson R44 Helicopters**  
**Installation of BearPaw Model BP44**

**Report: HTC-MDL-BP-R44-1000 (Rev NC)**

APPROVED BY:

A handwritten signature in black ink, appearing to read "Mirko Zgela", is written over a horizontal line.

Mirko Zgela  
Design Approval Representative

DATE: AUG 8, 2006

DAR #310

Revision	Revision Date	Revision of Entry	Entered by

Rev. NC



## 1.0 MASTER DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
AAC-CPL-BP-R44-1000	Compliance Plan - Robinson R44 Helicopters - Installation of Bear Paw Model BP44	NC	DAR 310	July 4, 2006
HTC-314-0011-00-A	BearPaw Model BP44 – Installation Instructions - R44	A	DAR 310	June 12, 2006
AAC-STR-BP-R44-1000	Structural Substantiation – Helitowcart Inc. BearPaw Model BP44	NC	DAR 310	July 4, 2006
AAC-FTR-C-FBLO	Simple External Modification – Applicant’s Flight Test Plan/Report	NC	DAR 310	Aug 4, 2006

## 2.0 MASTER DRAWINGS

Drawings #	Title	Revision Status	Approval by	Date
VNR083	BearPaw Assembly	R04	DAR 310	Aug 8, 2006
VNR084	BearPaw – Iceblade	R01	DAR 310	Apr 24, 2006
VNR085	BearPaw – Iceblade Threaded Rod	R01	DAR 310	Apr 24, 2006
VNR086	BearPaw – Iceblade Assembly	R01	DAR 310	Apr 24, 2006
VNR088	BearPaw - Pad	R03	DAR 310	Apr 24, 2006
VNR087	BearPaw – U Shaped Clip	R04	DAR 310	July 31, 2006

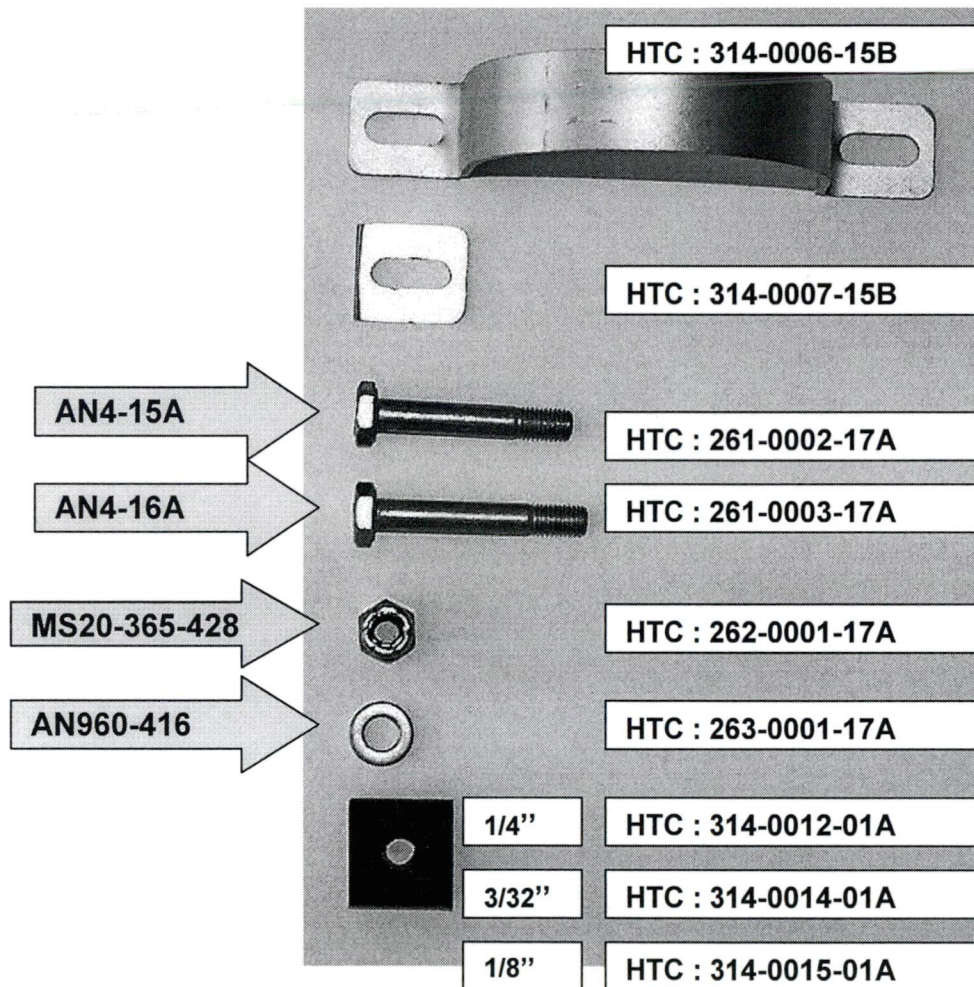
Master Document List  
Robinson R44 Helicopters  
Installation of BearPaw Model BP44  
Report: HTC-MDL-BP-R44-1000 (Rev NC)

VNR089	Bearpaw – Slotted Clip Support	R04	DAR 310	July 31, 2006
VNR099	Filler Block	R01	DAR 310	Aug 8, 2006

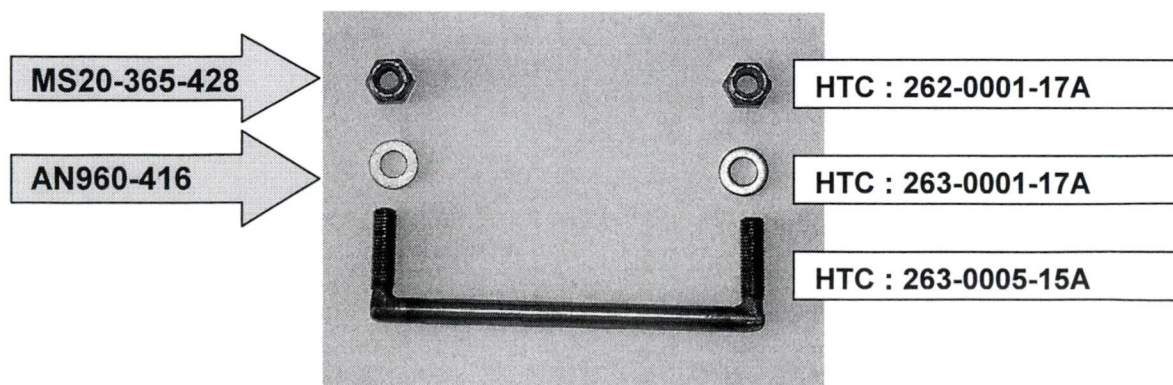
### 3.0 REFERENCE DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
314-0009-01-A	Ultra High Molecular Weight Polyethylene – Typical Properties	A	N/A	May 24, 2006
314-0008-01-A	Propriétés du UHMW TIVAR	A	N/A	May 24, 2006

**BearPaw Hardware:**

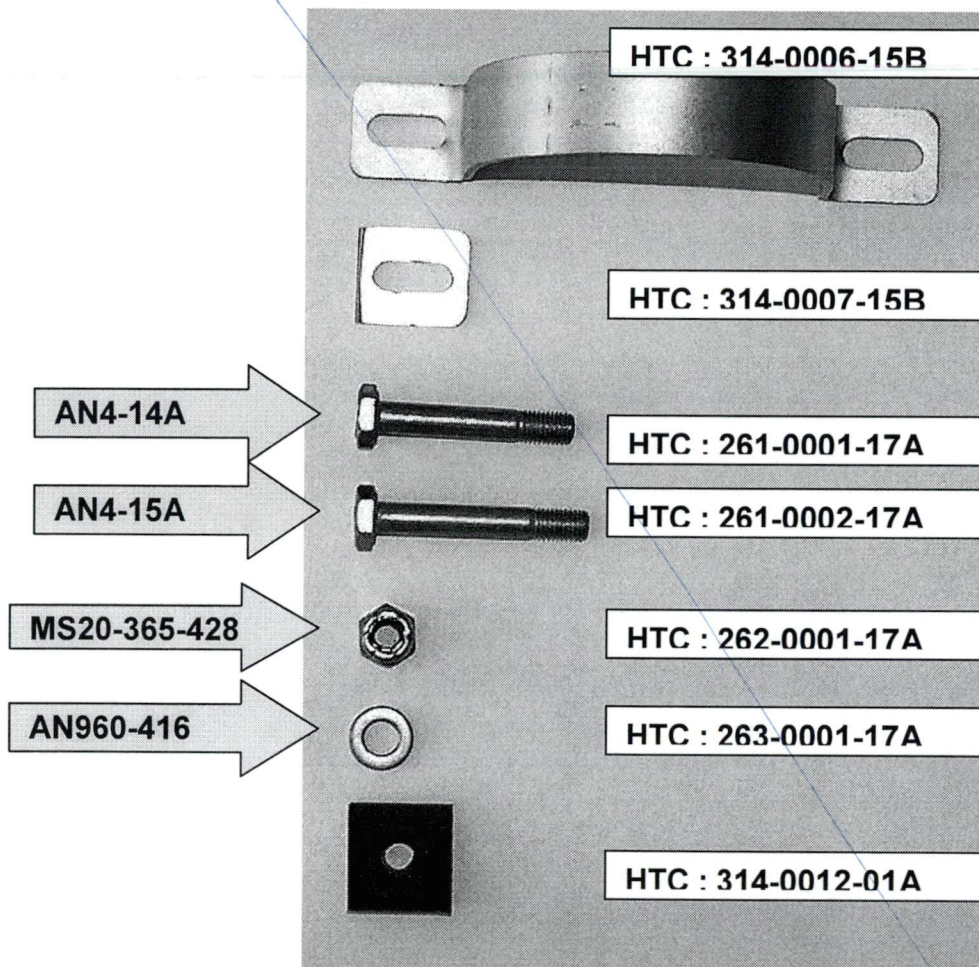


**IceBlade Hardware:**





**BearPaw Hardware:**



**IceBlade Hardware:**

